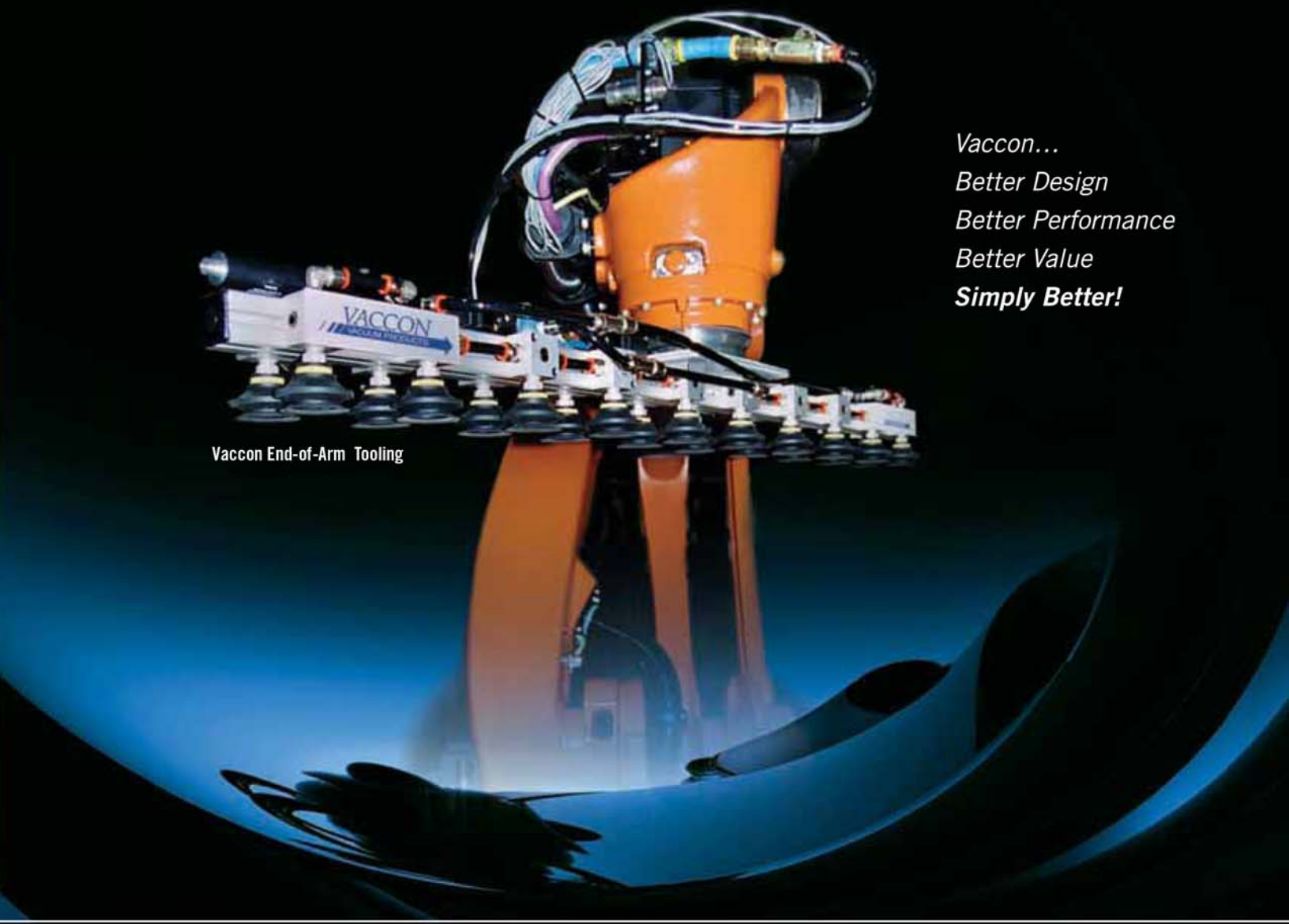
Vaccon Vacuum Pumps, Cups, Accessories, & End-of-Arm Tooling

VACCON
VACUUM PRODUCTS

Master Catalog

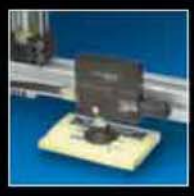


Vaccon End-of-Arm Tooling

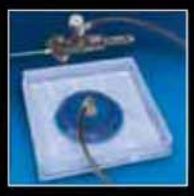
Vaccon...
Better Design
Better Performance
Better Value
Simply Better!

Cartridges

Modular Vacuum Pumps



Pneumatic Blow-off Vacuum Pumps



Air Saver Pumps

Adjustable Dirt Tolerant Pumps

Cups

Material Conveying

Air Amplifiers/ Blowers

Serving the:
Robotics, Automation, Packaging, Electronics, Printing, Automotive, Pharmaceutical, Plastics, Food Processing, Chemical, Medical, Appliance, Laboratory, Glass, Paper, Gas, Marine, Injection Molding, HVAC, and Process Control Industries for over 35 years

It's Easier than Ever to Work with Vaccon...

We've made important changes to our catalog and website so you can find, configure and purchase products faster and easier than ever.

1. Find It:

Expanded product offering means the right product for the job.

Comprehensive print catalog and website with integrated digital catalog improves searching and is available 24/7.

2. Configure It:

Exploded views show all options available for each product on one page.

Build your pump online with either our CAD or online store configurator – get 2D/3D CAD models, images, part numbers and pricing for your exact configuration.

3. Buy It:

- Contact your local **Worldwide Vaccon Representative**
- Online store @ **www.vaccon.com**
- Contact Vaccon directly at **1-800-848-8788** or **508-359-7200**

If you are like us…once you have found the product you need – you want it, now! We understand the on-demand world and maintain a large inventory to ship same day for in stock products.

Technical Support:

Our vacuum experts are proven problem solvers with years of practical, hands-on experience. Contact us by phone, email, online chat or visit our website. Unsure which product or combination of products will work best in your application? Send your product to Vaccon for evaluation and product recommendation. We will test your product, take photos, video and email you the results.

To ensure proper pump selection for your application, take advantage of Vaccon's **Free 30 Day Test & Evaluation program**.

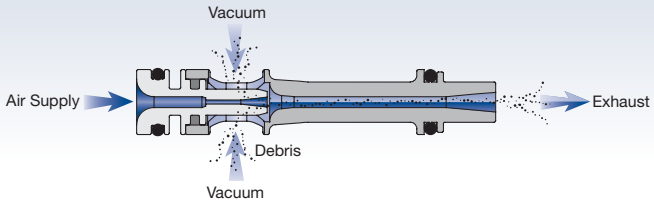
- Spring Levelers
- Light Duty Brackets
- Heavy Duty Spring Levelers
- Fixed Extension Shaft & Brackets
- Vacuum Cup Swivel Joints
- Universal Mounting Brackets
- Manifold Block/ Cup Mount
- Extrusions
- Push-to-Connect Fitting

Why VACCON VACUUM PRODUCTS *It's Simple!*

"Designed for Dirt" – Vaccon pumps don't lose suction or require maintenance.

Vacuum pumps by nature, suck in the atmosphere they operate in. Whatever debris, dirt and/or dust are in the air will be drawn into the pump. Whether your application is carton erecting, pet food bagging or sheet feeding die-slick coated metal into a press, Vaccon pumps operate continuously without maintenance or vacuum filters that can clog, degrade performance, cause downtime and increase costs.

Vaccon Venturi Cartridges – The Indestructible Vacuum Engine



- **Non-clogging - no maintenance**
  Vaccon's advanced venturi design generates high internal velocities that carry dirt through and out of the pump. With no obstacles to impede flow or trap dirt, Vaccon pumps never lose suction or require maintenance. *It's that simple.*
- **High flow - high performance**
  Knowing that the majority of work is done above 9"Hg [305mbar], Vaccon specifically designed it single stage venturi's to provide higher flows at the upper vacuum levels. In most cases, our flow rates at the upper levels exceed multi-stage pumps by a factor of 2 to 7 times.
- **Compact - close**
  For over 35 years, Vaccon's design philosophy has been "Keep it simple and small." Our compact, single stage venturi's require little installation space and can be positioned close to the vacuum point for faster response, increased safety and greater productivity.
- **Streamlined design and quick assembly**
  Now, Vaccon pumps can be mounted to T-slot extrusions making design and assembly quick and easy.

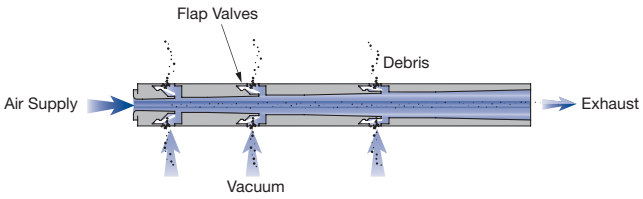
Vaccon's Mid Series Venturi Vacuum Cartridges – Nylon – lightweight – non-clogging - debris passes through the venturi and out the exhaust.

Multi-stage Design Flaw - Flap Valves!

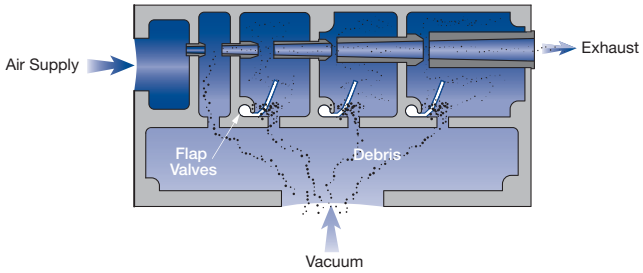
- Flap valves get stuck open from ingested debris.
- To protect these flap valves, an intake filter is required.
- Intake filters get clogged and cause loss of suction.
- Loss of suction causes production to stop until maintenance is performed and/or replacement of the intake filter and/or the flap valves occurs.

Result: Multi-stage pump flap valves cause downtime, increase operating expenses - maintenance and replacement costs

Typical in-line multi-stage pump



Typical multi-stage pump

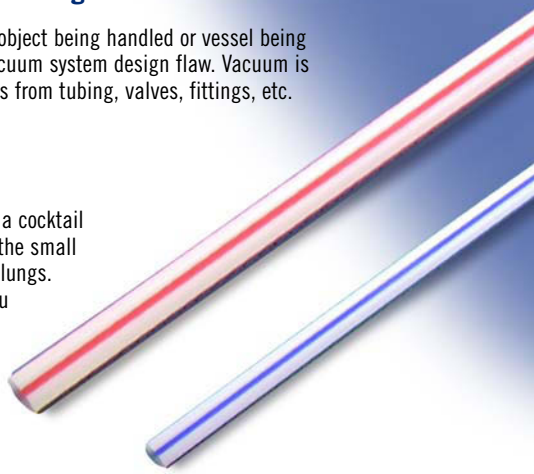


When performance, production and reliability matter…
It's Vaccon Single-Stage Venturi's – *Simply Better!*

Design Your Vacuum System to Breathe… Avoid the #1 System Design Flaw.

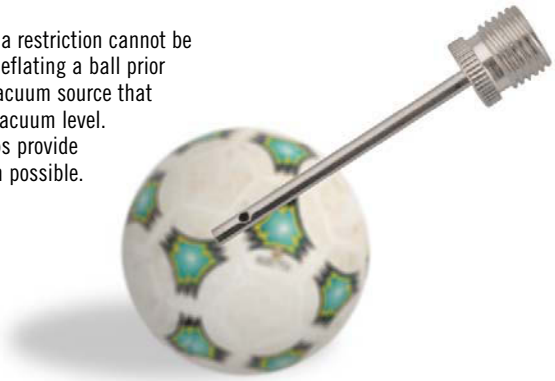
To ensure an efficient vacuum system, emphasis should be placed on the vacuum flow path beginning with the object being handled or vessel being evacuated and ending at the vacuum source. Improper sizing of the system components is the most common vacuum system design flaw. Vacuum is a low pressure power source (max value of 14.7 PSI, [1 bar]) whose effectiveness is easily reduced by restrictions from tubing, valves, fittings, etc.

An excellent analogy is trying to breathe through a cocktail straw. It's almost impossible to survive because the small flow path will not allow enough air to reach your lungs. A drinking straw with its larger flow path let's you breathe much easier by allowing more flow.

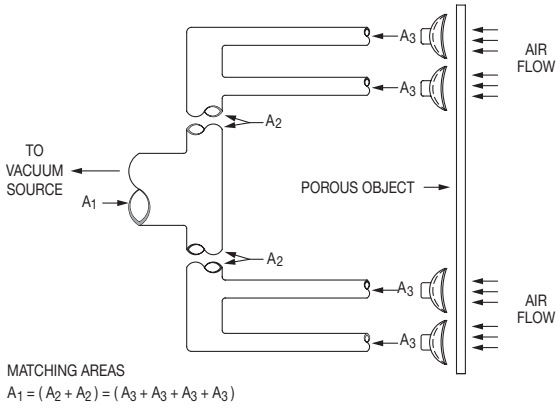


To determine if your system is restricting vacuum flow, place a vacuum gauge at the pump. If the gauge reads vacuum when nothing is connected to the vacuum cup or a vessel is not attached, the system is restricting flow. If the system is not working, i.e. not picking up a porous object or not evacuating a vessel fast enough, a larger vacuum pump will not fix the system until the flow path size is increased.

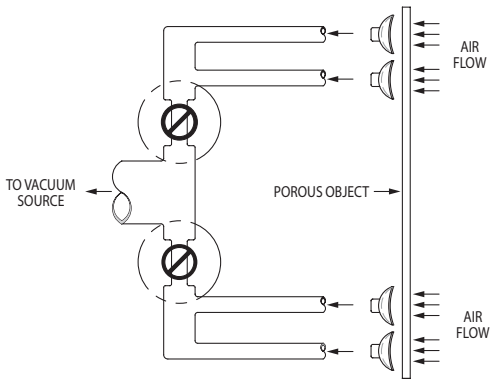
In applications where a restriction cannot be eliminated i.e. when deflating a ball prior to shipping – use a vacuum source that can generate a high vacuum level. Vaccon H Series pumps provide the fastest evacuation possible.



Proper Design



Improper Design



Plumbing a vacuum system can be thought of like a municipal water distribution system where the lines closest to the pump are the largest and get smaller as they get to your house (vacuum cup/ vessel). The area of each branch of tubing should match that of the next branch and the main trunk line should be sized to handle the maximum flow. **Remember, that just a small change in diameter causes a large change in area** - a 2x change in diameter increases the area 4x.

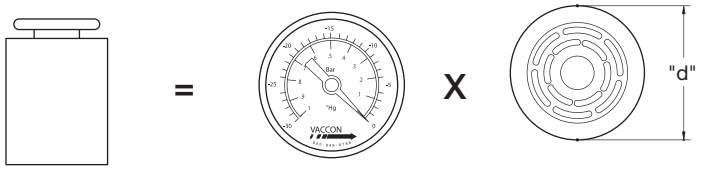
1. Pick and Place/Material Handling:

Pick and Place/Material Handling refers to lifting, gripping, rotating and positioning of an object through the use of a vacuum pump and vacuum cup.

Use the Equation: Force = Pressure X Area to determine:

- Lifting capacity of the pump and cup
- Required vacuum area, i.e. diameter of the cup – see cup section for a more detailed explanation
- Required vacuum level of vacuum pump

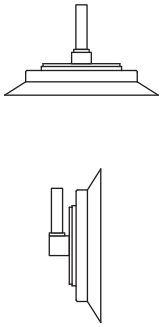
FORCE = **PRESSURE** X **AREA**



OBJECT WEIGHT
SAFETY FACTOR * Lbs (Kg)

CONVERT "Hg TO PSI,
DIVIDE BY 2
(2Hg" = 1 PSI)
PSI (Kpa)

AREA = pi * $d^2/4$
pi = 3.14
in^2 (cm^2)



Safety Factors

Horizontal lift = 2
Safety factor of 2 is recommended when cup face is in horizontal position.

Vertical lift = 4
Safety factor of 4 is recommended when cup face is in vertical position.

Force = Pressure x Area where:

F = the weight of the objects in lbs [kg] multiplied by the safety factor above.
P = the expected vacuum level in PSI [Kpa], remember to convert "Hg to PSI by dividing by 2
A = the area of the vacuum cup measured in square inches. Use the equation $\mathbf{A} = \frac{\pi d^2}{4}$

3 Vacuum Level Ranges:

- **"L" or "F" Series** 0-10"Hg, [0 to 339mbar] for low vacuum / high flow applications
- **"M" or "D" Series** 0-20"Hg, [0 to 677mbar] for medium vacuum / high flow applications
- **"H" or "S" Series** 0-28"Hg, [0 to 948mbar] for high vacuum / standard flow applications

3 Types of Material:

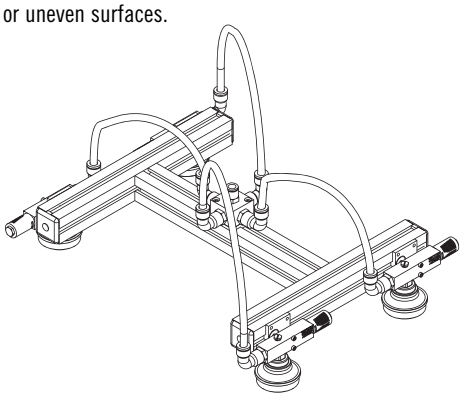
- Non-porous materials: steel, glass laminated chipboard, rigid plastic, semiconductors, etc.
- Porous materials: corrugated, wood, foam, felt, woven materials, objects with extremely rough or uneven surfaces.
- Flexible materials: plastic films, baked good, IV bags, paper bags – things that wrinkle.

Inexact Science

When handling porous materials such as corrugated or heavy fabric, it may be hard to choose the exact pump required because the leakage rate is not normally known. It is best to run a trial to test the ability of the pump to overcome the leakage. For existing systems, consult Vaccon for the equivalent pump size. For new applications, take advantage of Vaccon's 30 day Test & Evaluation program to ensure proper pump selection.

System Speed:

Cycle rate of the pump/cup system is determined by the evacuation speed of the venturi. **See Vessel Evacuation.**



Increase safety, reliability and speed by using one pump and one cup at each location. Should one cup fail the others will maintain their grip.

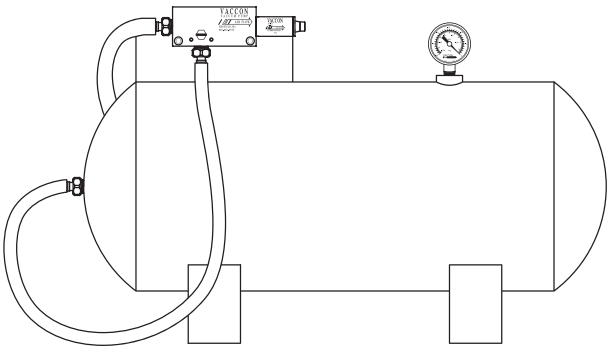
2. Vessel Evacuation:

In many process applications it is necessary to evacuate a vessel for the purpose of purging gases, leak testing and degassing viscous fluids. It may also be simply the length of tubing between the pump and cup.

Knowing the evacuation speed will help determine process completion time or the production rate of a pick and place system.

To find the speed, use the evacuation charts listed in the performance data for each venturi. Note that the charts are based on a one cubic foot volume.

1. Determine the total volume to be evacuated – vessel and/or vacuum lines (cu. ft.), 1728 cu. in = 1 cu. ft.
2. Desired vacuum level Hg [mbar] is determined by customer
3. Time to reach vacuum level (seconds) – determined by customer



Application Assumptions:

Vessel volume: 2 cu ft
Vacuum line: 3/8" ID, 3 ft length

Application #1

Evacuate Vacuum Lines Between Vacuum Cup and Pump

Desired Vacuum level: 28"Hg
Evacuation time: 10 seconds or less

1. Volume = Area of Tubing ID x Length

$$\frac{\pi d^2}{4} \times L = \frac{\pi (.375)^2}{4} \times 3' = 0.11045$$

2. Multiply 0.11045 x length of tubing in inches
   0.11045 x 36 = 3.976 cu. in.
3. Convert cu. in. to cu. ft – divide by 1728
   3.976 / 1728 = 0.0023cu. ft. (volume of tubing)
4. In evacuation chart – go to vacuum level required
   28"Hg = 790.80 seconds per cu. ft.
5. Multiply cu. ft **(0.0023 x 790.80) = 1.82 seconds**

Answer:
Depending on the style of pump and options needed, choose from VP Series, J Series, VDF Series or FDF Series pumps – they all have the ability to meet your application requirements.

Application #2

Evacuate Vessel and Vacuum Lines

Find Total System Volume

Desired Vacuum level: 28"Hg
Evacuation time: 5 minutes or less

1. Add vessel volume + tubing volume (Application 1)
   2 cu. ft + 0.0023 cu. ft. = 2.0023 cu ft.
2. In evacuation chart – go to vacuum level required
   28"Hg – start with smallest pump first until you find the time that meets your requirements. Note, you may have to go to larger pumps
3. Multiply cu. ft **(2.0023 x 125) / 60 = 4.17 minutes**

Answer:
Depending on the style of pump and options needed, choose from VP Series, J Series, VDF Series or FDF Series pumps – they all have the ability to meet your application requirements.

Model#	Evacuation Time in Seconds Based on 1 Cu. Ft. Volume /"Hg										
	0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	28"Hg
60H	0.00	15.00	29.80	50.60	74.20	102.80	135.90	183.20	245.90	410.20	790.80
90H	0.00	6.50	12.30	18.90	32.50	47.00	65.40	92.20	130.00	222.20	281.30
100H	0.00	2.70	6.50	11.20	17.50	25.80	38.40	55.40	79.20	166.70	251.80
150H	0.00	2.30	3.80	6.50	10.20	14.10	21.30	44.90	55.00	81.00	125.00

Vacuum Terms and Definitions

Air Consumption:	The volume of compressed air required to power the pump.
Atmospheric Pressure:	The atmosphere that surrounds the Earth can be considered a reservoir of low pressure air. Its weight exerts a pressure that varies with temperature, humidity and altitude.
Barometer:	A device usually filled with mercury that measures atmospheric pressure.
Compressed Air Considerations:	1HP @ 80 PSI generates 4 SCFM of flow.
Standard or Average Atmospheric Pressure at Sea Level:	29.92"Hg or [760mm Hg]
Vacuum Flow:	The volume of free air induced by the vacuum pump per unit of time, expressed as standard cubic feet per minute – SCFM or [liters per minute - lpm]
Vacuum Force:	Equal to the vacuum level X the area of the vacuum surface, i.e. holding area of a vacuum cup.
Vacuum Level:	The magnitude of the suction created by the vacuum pump. The unit of measure is inches of Hg ("Hg) or (mbar). Vacuum level is affected by elevation and barometric pressure. For each 1,000 feet of elevation, vacuum level decreases by 1" of Hg.
Venturi's, Ejectors, Transducers, Generators:	All are air powered vacuum pumps, just different names.

Facts to Remember:

50 mmHg = 1 PSI
1mmHg = 1 torr (vacuum)
1"Hg = 25.4 mmHg
2"Hg = 1 PSI
29.92"Hg = 100 Kpa
14.7 PSI = 100 Kpa
14.7 PSI = 29.92"Hg
14.7 PSI = 760 mmHg

Conversion Chart – Vacuum vs. Pressure				
% Vacuum	"Hg	mmHg	bar	PSI
10	3	76.92	-0.1	-1.47
20	6	153.85	-0.2	-2.94
30	9	230.77	-0.3	-4.41
40	12	307.69	-0.4	-5.88
50	15	384.62	-0.5	-7.35
60	18	461.54	-0.6	-8.82
70	21	538.46	-0.7	-10.29
80	24	615.38	-0.8	-11.76
90	27	692.31	-0.9	-13.23
100	30	769.23	-1.0	-14.70

Venturi Vacuum Cartridges

for Vaccon Pumps & OEM Equipment

For Mini and Mid Series VP Pumps

Venturi cartridge in pump body or OEM cavity (Mid Series)

Mid-Series Cartridges in Nylon

Custom Manifold with Mini Cartridges

Ideal Applications:

- Flexible manufacturing environments
- Robotics / End-of-Arm Tooling
- Pick and place
- Integrate into blood or gas analysis machines
- Vessel evacuation
- Vacuum filling, vacuum chucking
- Medical Applications – diagnostic equipment, disposal products

Features/Benefits

- Saves space – eliminates the need for an external pump, install close to vacuum point
- High Productivity – powerful vacuum up to 28"Hg [948mbar], fast response time
- Compact & lightweight – reduces overall equipment weight
- Efficient – minimal air consumption, high performance
- Straight through design – reliable, no moving parts to wear out or get clogged, no maintenance
- Performance Optimization – precise control of flow and vacuum level

Standard Cartridges:

Vaccon offers 13 different single-stage venturi vacuum cartridges for the Mini and Mid Series vacuum pumps and manifolds. Ideally suited for machine designers, venturi cartridges easily fit into OEM cavities creating an unrecognizable (proprietary) vacuum source. "Vaccon Cartridges - The Power Inside."

Vacuum cartridges are a combination of interchangeable nozzles and diffusers that enable you to optimize pump performance based on desired vacuum level, vacuum flow, evacuation speed and air consumption.
If the product changes in size, porosity, or weight, you can refit the existing equipment with a different cartridge by simply swapping the entire cartridge, or just the nozzle or diffuser.

Changing cartridges can be performed in a matter of seconds, in the field with minimal downtime. Mid Series cartridges are color-coded based on performance characteristics for easy visual identification.

Performance Level Designations:

"**L**" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications (not available for Mini Series)

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

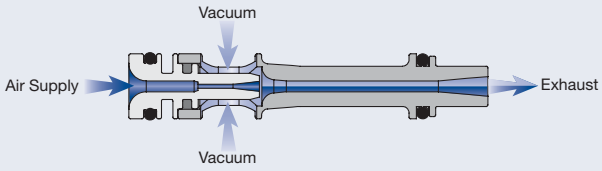
"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Cartridge Options:

- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5BAR] standard, 60 PSI [4.0 BAR] optional
- For chemical compatibility requirements, food or medical applications, custom materials and sizes are available including stainless steel (303, 304, 316, 316L), PVC, PEEK, Teflon®, Delrin® and more.

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice. it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port located between the nozzle and diffuser. The nozzle and diffuser combine to create a venturi vacuum cartridge.



Eliminate the Guesswork: Contact Us!

Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

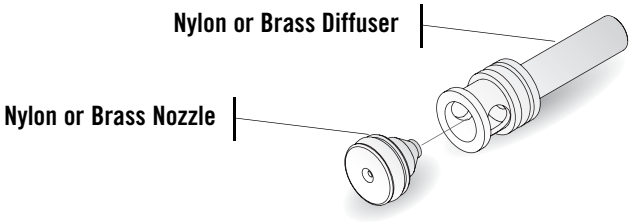
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

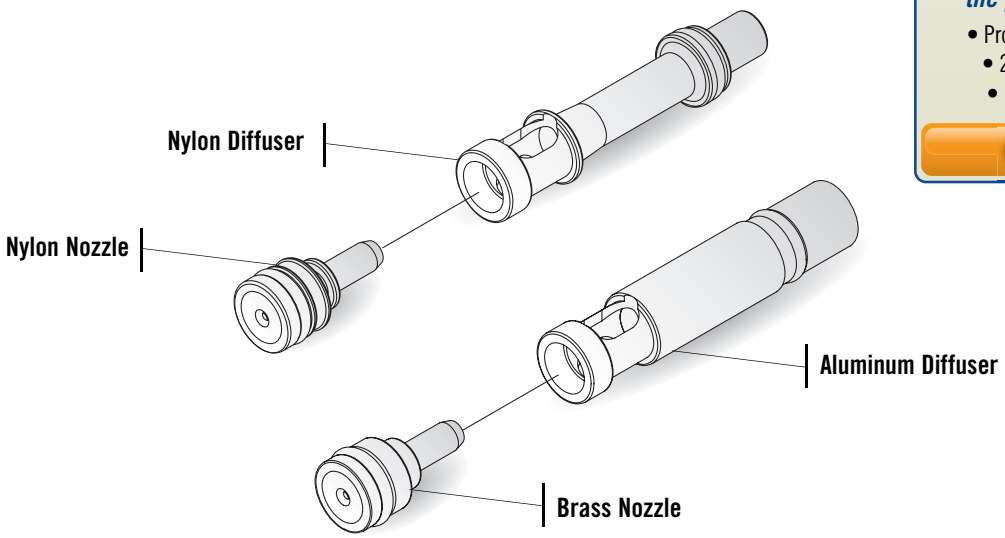
Venturi Vacuum Cartridges (Mini and Mid Series) Configurations and Options:

All Vaccon cartridges offer a variety of options and accessories to meet your specific requirements.
Please configure your cartridge from the options listed below.

CM60 – Mini Series Cartridge = Nozzle & Diffuser with Buna N O-rings



C – Mid Series Cartridge = Nozzle & Diffuser with Buna N O-rings



How to Specify:

Mini Cartridges: **CM60 - H - PL - 60**

Mid Cartridges: **C - 60 - H - PL - 60**

P/N	Pump Style
CM60	Mini Cartridge (M or H only)
C	Mid Series Cartridges

P/N	Max. Flow Level
60	Mid Series Only
90	Mid Series Only
100	Mid Series Only
150	Mid Series Only

P/N	Operating Pressure
	80 PSI [5.5BAR] - Standard
60	60 PSI [4.0BAR]

P/N	Material Selection
PL	Nylon - Standard Aluminum/Brass - Option

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

For complete Performance Data, see page 13.

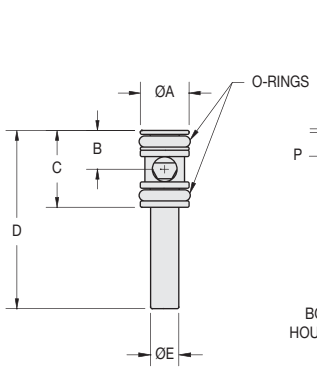
Mini Venturi Cartridges: CM60 (M or H)

Part Number: CM60H-PL

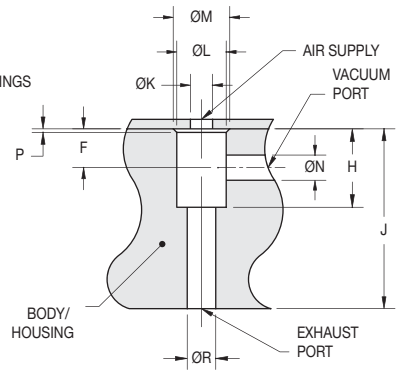
Standard Material: Nylon-Black
Weight: 0.03 oz [0.8g]

Part Number: CM60H

Optional Material: Brass
Weight: 0.17 oz [4.7g]



Mini Cartridge dimensions are the same for nylon and brass



Mini Cartridge housing

Model #	Imperial Dimensions (in.)													
	A	B	C	D	E	F	H	J	K	L	M	N	P	R
CM60 (M, H) -PL	0.312	0.25	0.49	1.13	0.17									
CM60 (M, H)	0.312	0.25	0.49	1.13	0.17									
Housing						0.25	0.50	1.14	0.14	0.312	0.36	0.16	0.02	0.18
Model #	**Metric Dimensions (mm)**													
	A	B	C	D	E	F	H	J	K	L	M	N	P	R
CM60 (M, H) -PL	7.92	6.2	12.3	28.6	4.3									
CM60 (M, H)	7.92	6.2	12.3	28.6	4.3									
Housing						6.2	12.6	28.8	3.6	7.92	9.1	4.0	0.6	4.6

(CM60) Mini Venturi Cartridge Specifications:

Cartridge Material: Standard: Nylon & Buna-N O-rings

Optional Materials: Brass & Buna-N O-rings, Stainless Steel, PVC, Peek, Teflon®, Delrin®
Consult factory for availability

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -30°~250°F [-34°~121°C]

Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

(CM60) Mini Venturi Cartridge Operating and Installation Instructions:

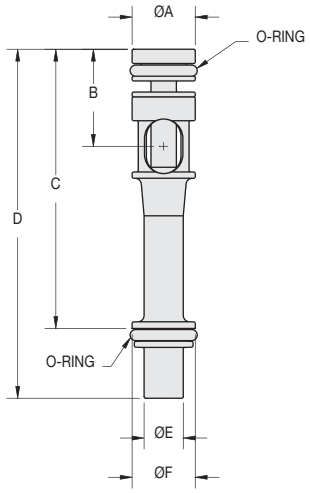
Supply Line: Min. 5/32" [4mm], 1/4" O.D. [6mm] tube preferred for supply lines exceeding 3' [1M]

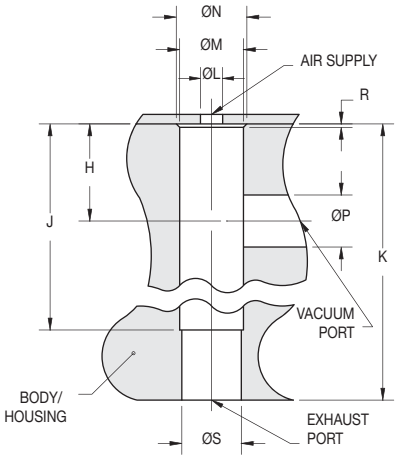
Control Valve: 3 way (faster part release), minimum orifice - 0.062" diameter [1.57mm]

Vacuum Line: 1/4" [6mm] tube preferred, for short runs 5/32" [4mm] may be used

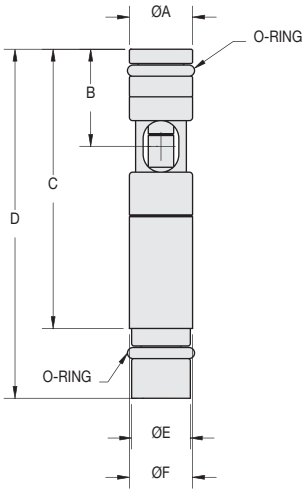
Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF125LPM. See Page 282.

Mid Venturi Cartridges C (60, 90, 100, 150) (L, M, H)





Cartridge housing for both nylon and metal cartridges



Part Number: C60, 90, 100, 150 (L, M, H) -PL

Standard Material: Nylon
Weight: 0.08 oz [2.3 g]

Part Number: C60, 90, 100, 150 (L, M, H)

Optional Material: Aluminum/Brass
Weight: 0.47 oz [13.2 g]

Model #	Imperial Dimensions (in.)														
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S
Nylon Cartridges - PL	0.402	0.61	1.76	2.20	0.25	0.402									
Metal Cartridges	0.402	0.61	1.76	2.20	0.37	0.402									
Housing							0.61	1.78	2.21	0.14	0.402	0.45	0.33	0.02	0.375
Model #	**Metric Dimensions (mm)**														
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S
Nylon Cartridges - PL	10.21	15.5	44.7	55.9	6.3	10.21									
Metal Cartridges	10.21	15.6	44.7	55.9	9.4	10.21									
Housing							15.5	45.1	56.1	3.6	10.21	11.3	8.3	0.5	9.53

(C) Mid Series Cartridge Specifications:

Cartridge Material: Standard: Nylon, Buna-N O-rings

Optional Materials: Brass & Aluminum & Buna-N O-rings, Stainless Steel, PVC, Peek, Teflon®, Delrin®
Consult factory for availability

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -30°~250°F [-34°~121°C]

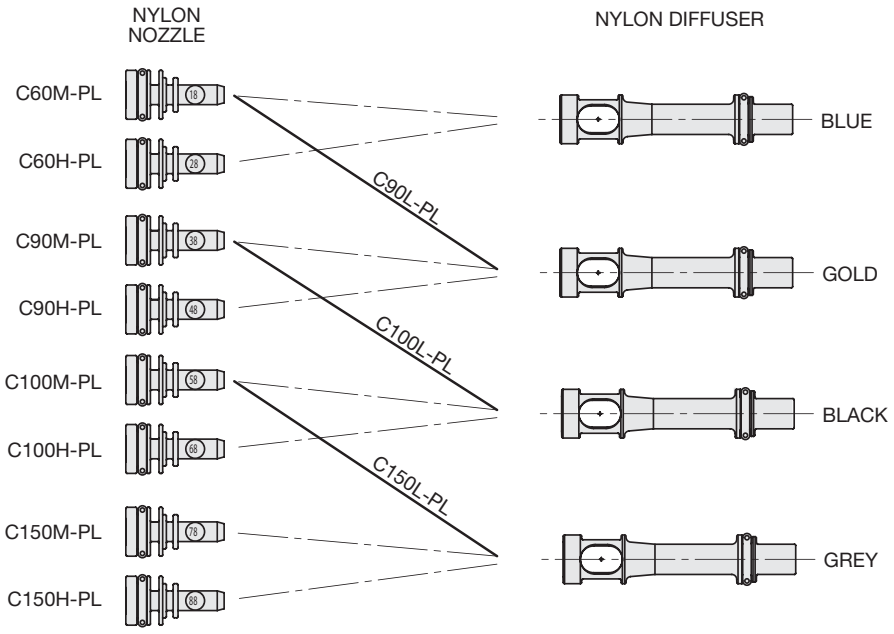
Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

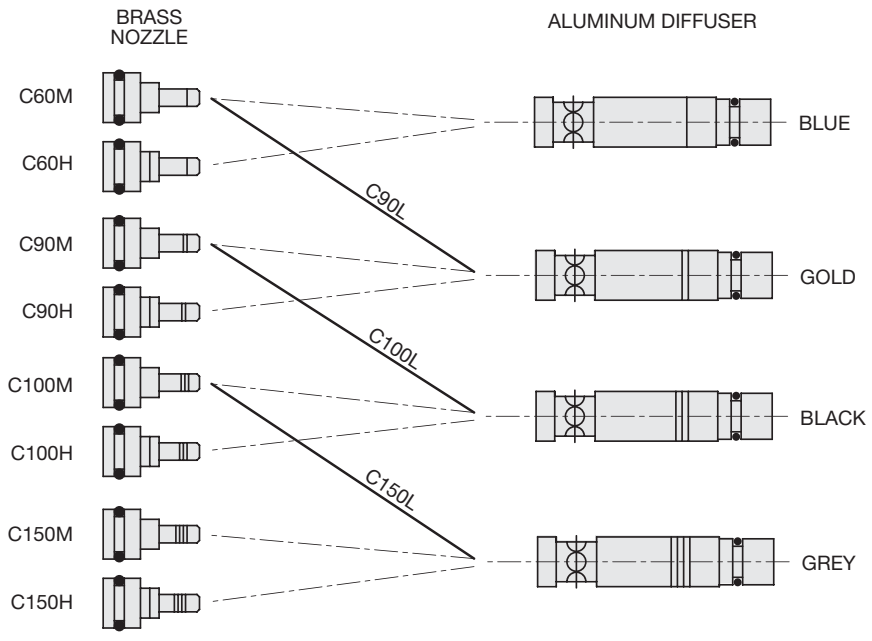
(C) Mid Series Cartridge Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF125LPM. See Page 282.

Mid Series Cartridge Identification Chart





Custom Venturi Vacuum Cartridges

Ideal for OEM engineers and designers

Creative Engineering • Precision Manufacturing • Extensive Application Experience

When off the shelf doesn't work, Vaccon's engineering expertise and manufacturing capabilities can provide custom solutions to your specifications. Whether it's as simple as modifying a standard product, or more complex requiring new products with precise tolerances, or special materials, Vaccon has the solution.

Custom materials available: Brass, Stainless Steel, PVC, Peek, Teflon®, Delrin® - consult factory.

Custom Cartridge: C350H-303 Stainless Steel

The C350H cartridge supplies the equivalent performance as VP90-350H or JS-350 vacuum pump. Designed to fit in a custom cavity. Other performance levels available. See Mid and Max Series Performance Data for options.

Common Applications:

- High temperature
- Caustic gas applications – smoke stack analysis
- Air testing
- Food processing
- Pharmaceutical
- Corrosive chemical processing

Top: Custom made C350H-303 stainless steel venturi cartridge 5.375" L x 1" dia.
Bottom: Standard Mid Series C150H aluminum/brass cartridge is 2.2" L x 0.40" dia.
Both cartridges generate up up to 28"Hg.

Custom Mini Cartridges in Nylon or Brass

Mini cartridges are available in nylon or brass and can reach up to 28"Hg. Designed to fit in a custom cavity. Other performance levels available. See Mini Series Performance Data for options.

Common Applications:

- Medical – disposable applications
- Electronic
- Air monitoring
- Gas/liquid sampling
- Pick and place of small items

Top: Standard CM60 Mini Cartridge 1.13" L x 0.31" dia.
Bottom: Custom CM60 Mini Cartridge 1.06" L x 0.24" dia.

Performance Data for Mini Series Pumps & Cartridges

For Pump Models: VP00, VP01, VP01QR, VP0X, and Manifolds

M-Series Pumps for Medium Vacuum Applications

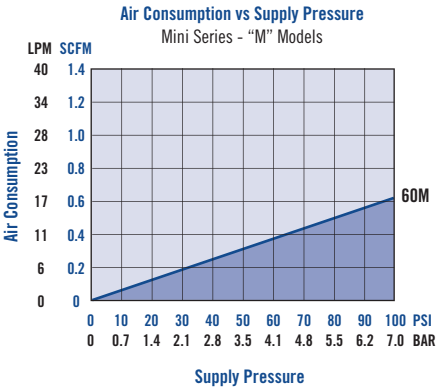
M is for “Medium” vacuum levels up to 20" Hg [677mbar] for applications involving porous materials (cardboard, wood, masonry, baked goods, textiles).

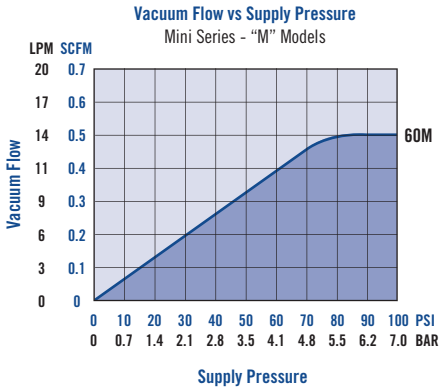
Model #	Air Consumption SCFM	Imperial - Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
CM60M	0.50	0.50	0.40	0.30	0.22	0.15	0.08	0.03	0.00
		Evacuation Time in Seconds based on 1 Cu. Ft. Volume/"Hg							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
		0.00	12.50	25.10	43.90	68.60	99.30	153.70	227.00

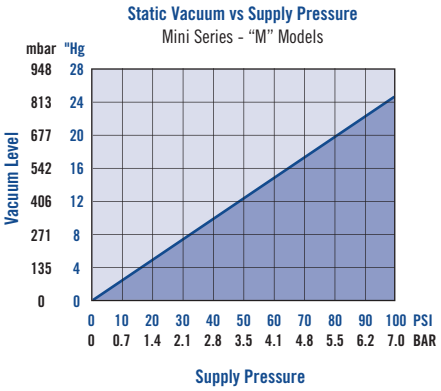
Model #	Air Consumption L/min	Metric - Vacuum Flow (L/min) vs. Vacuum Level (mbar)							
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	677mbar
CM60M	14.2	0.0	11.3	8.5	6.2	4.2	2.3	0.8	0.0
		Evacuation Time in Seconds based on 1 Liter Volume / mbar							
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	677mbar
		0.0	0.4	0.9	1.6	2.4	3.5	5.4	8.0

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for Mini Series Pumps & Cartridges

For Pump Models: VP00, VP01, VP01QR, VP0X, and Manifolds

H-Series Pumps for High Vacuum Applications

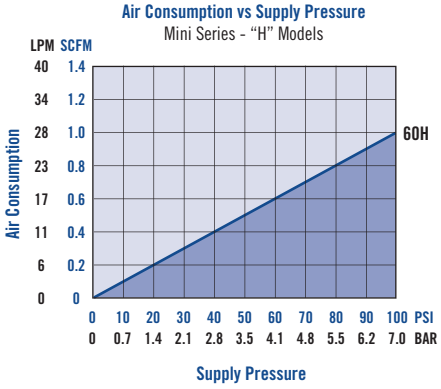
H is for "High" vacuum levels up to 28" Hg [948mbar] for applications involving non-porous materials (steel, plastic, glass, etc.). The high vacuum level provides high vacuum force for lifting heavy materials and holding them securely.

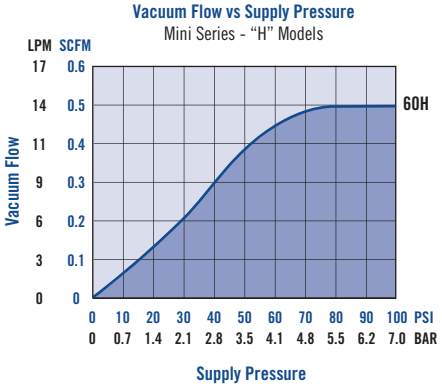
Model #	Air Consumption SCFM	Imperial - Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)										
CM60H	0.80	0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hr	24"Hg	27"Hg	28"Hg
		0.50	0.38	0.32	0.30	0.27	0.23	0.20	0.13	0.05	0.02	0.00
		Evacuation Time in Seconds based on 1 Cu. Ft. Volume/"Hg										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	928"Hg
		0.00	15.00	29.80	50.60	74.50	102.80	135.90	183.20	245.90	410.20	790.80

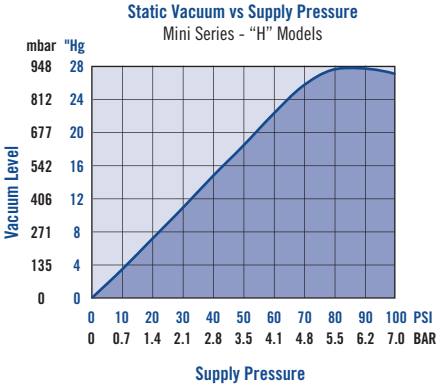
Model #	Air Consumption L/min	Metric - Vacuum Flow (L/min) vs. Vacuum Level (mbar)										
CM60H	22.7	0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	914 mbar	948 mbar
		14.2	10.8	9.1	8.5	7.6	6.5	5.7	3.7	1.4	0.6	0.0
		Evacuation Time in Seconds based on 1 Liter Volume/mbar										
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	914 mbar	948 mbar
		0.00	0.5	1.1	1.8	2.6	3.6	4.8	6.5	8.7	14.5	27.9

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for Mid Series Pumps & Cartridges

For Pump Models: VP10, VP10-AC, VP10-MP, VP1X, VP20, VP20-AS, VP20-MP, VP2X, VP2XV, VP30, VP30QR, and Manifolds

L-Series Pumps for Low Vacuum Applications

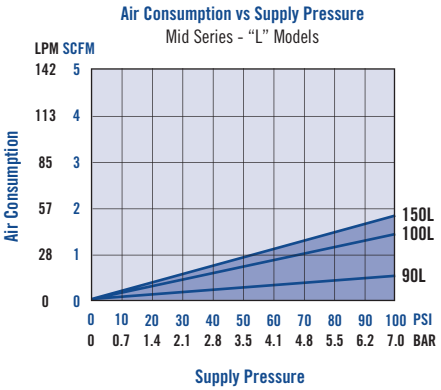
L is for "Low" vacuum levels up to 10" Hg [339mbar] for applications handling delicate parts, thin walled materials and for process control.

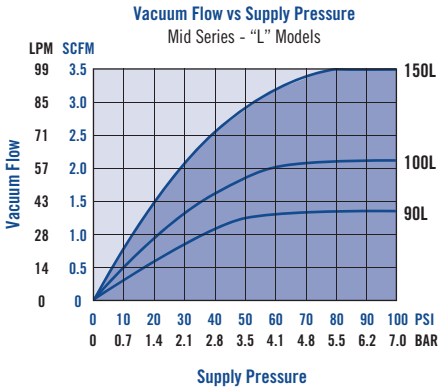
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)				
		0" Hg	3" Hg	6" Hg	9" Hg	10" Hg
90L	0.50	1.30	1.10	0.70	0.20	0.00
100L	1.40	2.10	1.60	1.10	0.50	0.00
150L	1.80	3.50	2.50	1.90	0.70	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**				
		0" Hg	3" Hg	6" Hg	9" Hg	10" Hg
90L		0.0	3.26	7.93	18.65	39.63
100L		0.0	2.33	4.66	10.88	24.09
150L		0.0	1.54	4.36	10.77	22.83

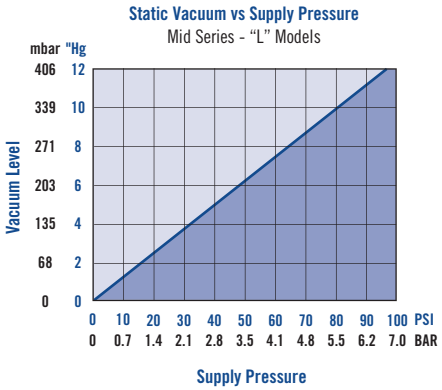
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)				
		0 mbar	102 mbar	203 mbar	305 mbar	339 mbar
90L	14.2	36.8	31.1	19.8	5.7	0.0
100L	39.6	59.5	45.3	31.1	14.2	0.0
150L	51.0	99.1	70.8	53.8	19.8	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**				
		0 mbar	102 mbar	203 mbar	305 mbar	339 mbar
90L		0.0	0.1	0.3	0.7	1.4
100L		0.0	0.1	0.2	0.4	0.9
150L		0.0	0.1	0.2	0.4	0.8

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for Mid Series Pumps & Cartridges

For Pump Models: VP10, VP10-AC, VP10-MP, VP1X, VP20, VP20-AS, VP20-MP, VP2X, VP2XV, VP30, VP30QR, and Manifolds

M-Series Pumps for Medium Vacuum Applications

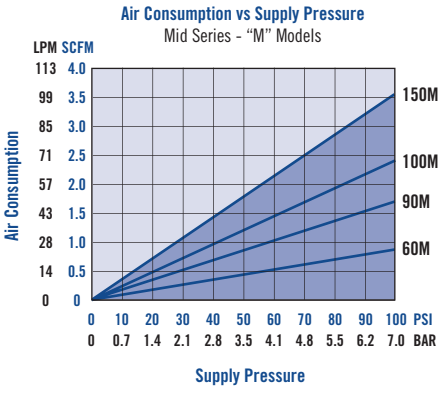
M is for "Medium" vacuum levels up to 20" Hg [677mbar] for applications involving porous materials (cardboard, wood, masonry, baked goods, textiles)

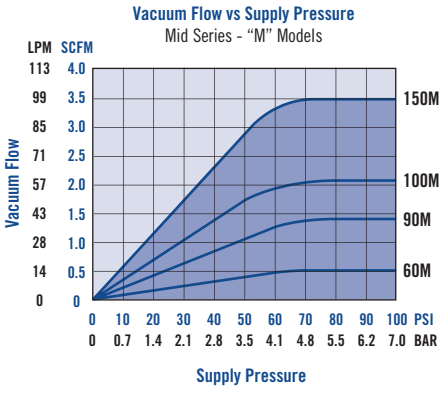
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
60M	0.50	0.50	0.40	0.30	0.22	0.15	0.08	0.03	0.00
90M	1.40	1.40	1.25	1.20	1.05	0.85	0.65	0.25	0.00
100M	1.80	2.10	2.00	1.85	1.75	1.60	1.25	0.80	0.00
150M	2.80	3.50	3.20	2.95	2.75	2.50	1.80	0.95	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
60M		0.00	12.50	25.10	43.90	68.60	99.30	153.70	227.00
90M		0.00	3.75	7.20	12.40	19.10	29.90	52.00	104.00
100M		0.00	2.65	5.80	9.90	16.20	22.90	36.20	56.60
150M		0.00	1.35	3.20	5.20	7.70	11.80	23.40	52.00

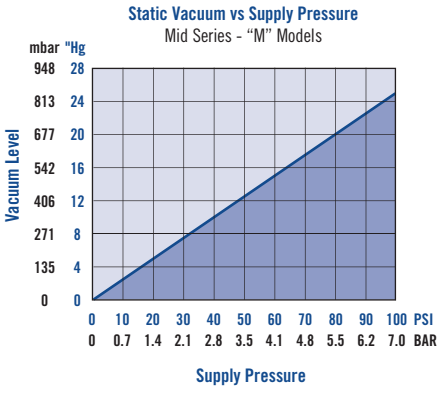
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)							
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	677 mbar
60M	14.2	14.2	11.3	8.5	6.2	4.2	2.3	0.8	0.0
90M	39.6	39.6	35.4	34.0	29.7	24.1	18.4	7.1	0.0
100M	51.0	59.5	56.6	52.4	49.6	45.3	35.4	22.7	0.0
150M	79.3	99.1	90.6	83.5	77.9	70.8	51.0	26.9	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**							
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	677 mbar
60M		0.0	0.4	0.9	1.6	2.4	3.5	5.4	8.0
90M		0.0	0.1	0.23	0.4	0.7	1.1	1.8	3.7
100M		0.0	0.1	0.2	0.3	0.6	0.8	1.3	2.0
150M		0.0	0.0	0.1	0.2	0.3	0.4	0.8	1.8

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for Mid Series Pumps & Cartridges

For Pump Models: VP10, VP10-AC, VP10-MP, VP1X, VP20, VP20-AS, VP20-MP, VP2X, VP2XV, VP30, VP30QR, and Manifolds

H-Series Pumps for High Vacuum Applications

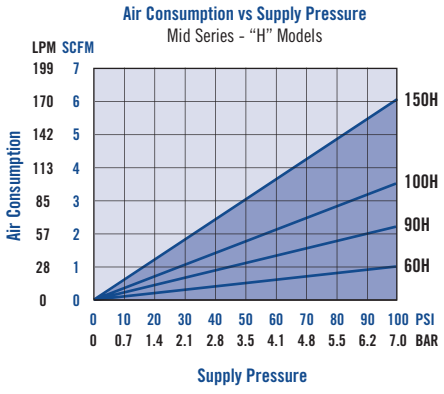
H is for "High" vacuum levels up to 28" Hg [948mbar] for applications involving non-porous materials (steel, plastic, glass, etc.). The High vacuum level provides high vacuum force for lifting heavy materials and holding them securely.

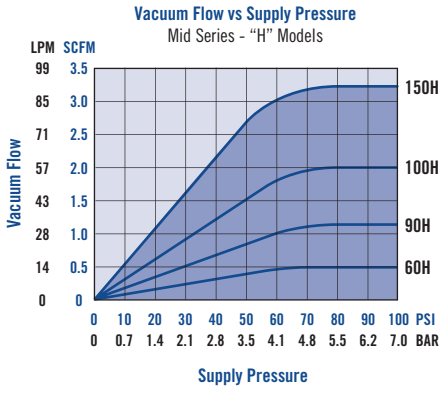
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	28"Hg
60H	0.80	0.50	0.38	0.32	0.30	0.27	0.23	0.20	0.13	0.05	0.02	0.00
90H	1.80	1.20	1.00	0.95	0.90	0.85	0.75	0.70	0.52	0.47	0.20	0.00
100H	2.80	2.00	1.85	1.75	1.57	1.40	1.25	1.05	0.84	0.70	0.35	0.00
150H	4.80	3.20	2.80	2.50	2.30	2.00	1.60	1.40	1.20	0.80	0.50	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	28"Hg
60H		0.00	15.00	29.80	50.60	74.50	102.80	135.90	183.20	245.90	410.20	790.80
90H		0.00	6.50	12.30	18.90	32.50	47.00	65.40	92.20	130.00	222.20	281.30
100H		0.00	2.70	6.50	11.20	17.50	25.80	38.40	55.20	79.20	166.70	251.80
150H		0.00	2.30	3.80	6.50	10.20	14.20	21.30	44.90	55.00	81.00	125.00

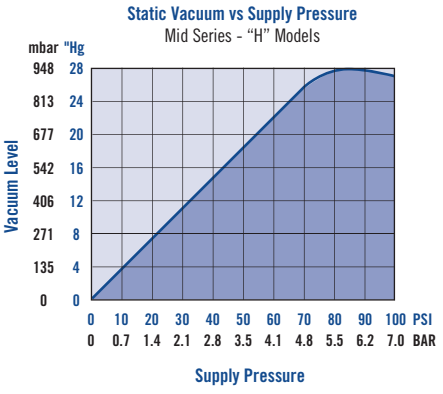
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)										
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mba	609 mbar	711 mbar	813 mbar	914 mbar	948 mbar
60H	22.7	14.2	10.8	9.1	8.5	7.6	6.5	5.7	3.7	1.4	0.6	0.0
90H	51.0	34.0	28.3	26.9	25.5	24.1	21.2	19.8	14.7	13.3	5.7	0.0
100H	79.3	56.6	52.4	49.6	44.5	39.6	35.4	29.7	23.8	19.8	9.9	0.0
150H	135.9	90.6	79.3	70.8	65.1	56.6	45.3	39.6	34.0	22.7	14.6	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**										
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	914 mbar	948 mbar
60H		0.0	0.5	1.1	1.8	2.6	3.6	4.8	6.5	8.7	14.5	27.9
90H		0.0	0.2	0.4	0.7	1.1	1.7	2.3	3.3	4.6	7.8	9.9
100H		0.0	0.1	0.2	0.4	0.6	0.9	1.4	1.9	2.8	5.9	8.9
150H		0.0	0.1	0.1	0.2	0.3	0.5	0.8	1.6	1.9	2.9	4.4

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.

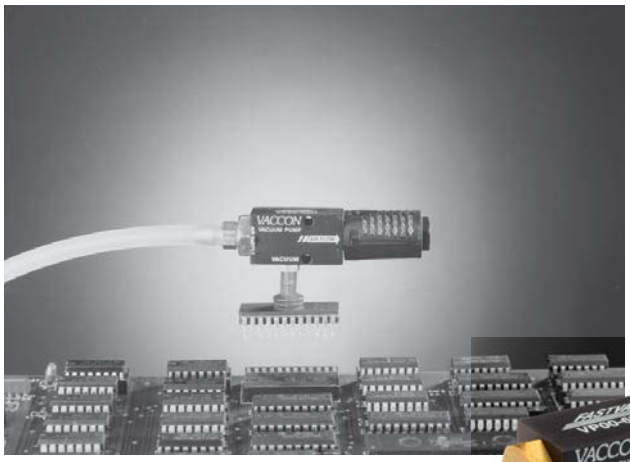






Miniature Venturi Vacuum Pump with Silencer

Fastvac Mini Series: VP00



VP00-60H picks and places IC chips on circuit boards

VP00-60H Standard Pump

Ideal Applications:

- Small part pick and place
- Integrated circuit handling
- Small vessel evacuation
- Sampling for liquid and gas analysis

Features/Benefits

- High productivity – powerful vacuum up to 28"Hg [948mbar]
- Mounts Easily – square body, compact and lightweight
- Fast Response – installs close to vacuum point
- Efficient – minimal air consumption
- Reliable – operates trouble free:
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear or clog
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Standard Pump:

The VP00 Fastvac Mini Series air-powered venturi vacuum pumps are highly efficient, capable of reaching 28"Hg [948mbar], and dirt tolerant. The VP00s use minimal compressed air and include a silencer for quiet operation. Lightweight and compact, they easily mount close to the vacuum point for fast response.

Performance Level Designations:

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

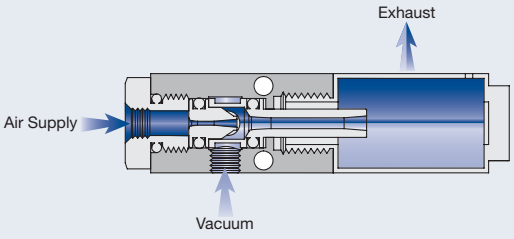
"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Factory installed miniature vacuum switches or sensors for reliable part detection
- ST2 (straight–through) silencer allows ingested debris to exit the pump without clogging
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply (80 PSI [5.5BAR] standard, 60 PSI [4.0BAR] optional).

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice, it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port, located between the nozzle and diffuser. The nozzle and diffuser combine to create a venturi vacuum cartridge.



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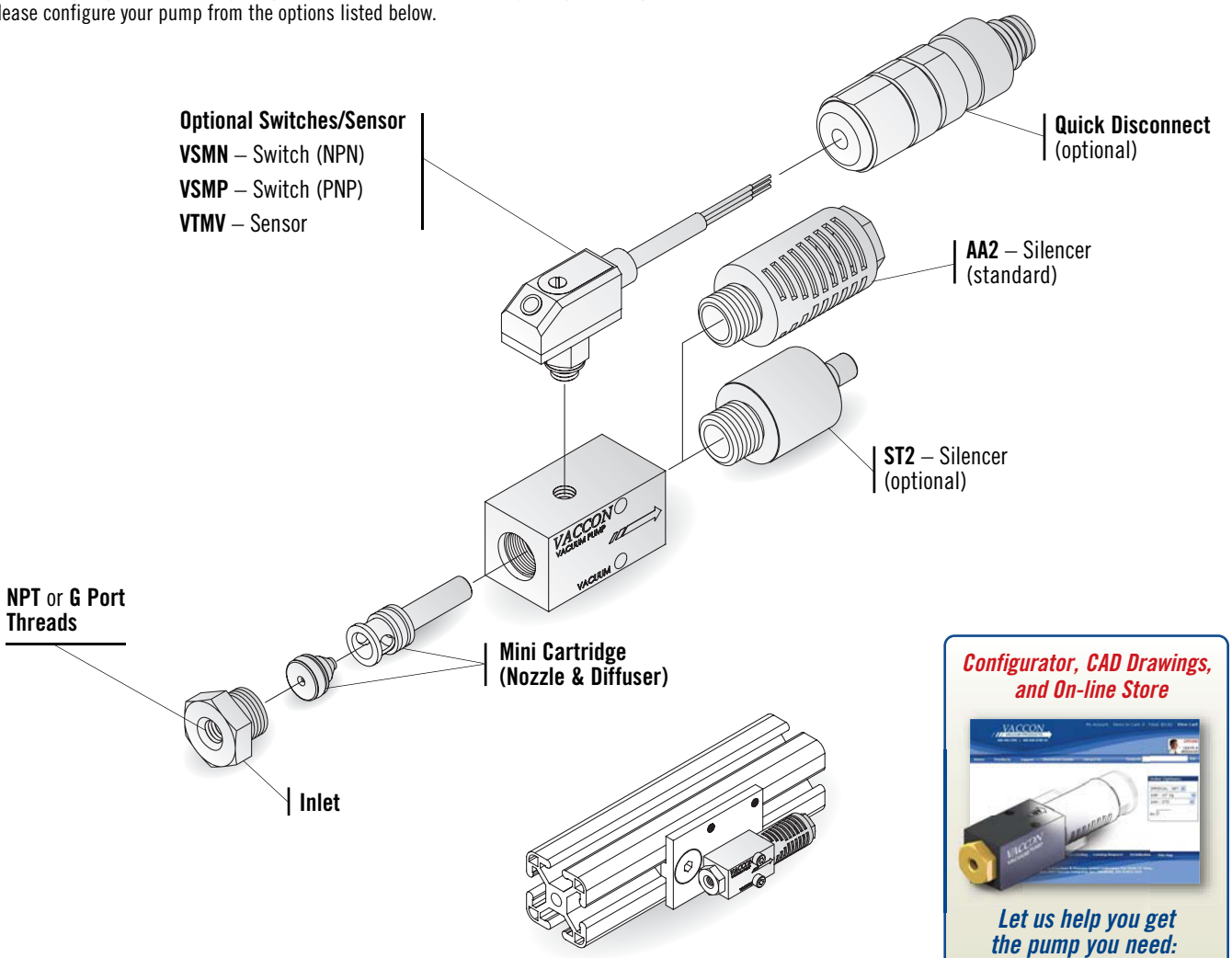
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

VP00-60 (M, H) Fastvac Mini Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.



VP00 pumps are Fractional and Metric T-Slot compatible. See EOAT Section.

How to Specify:

VP00-60 H - 60 - ST2 - VSMP

P/N	Thread
VP00-60	NPT
I-VP00-60	G Port

P/N	Max. Vac Level
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Std)
60	60 PSI [4.0 BAR]

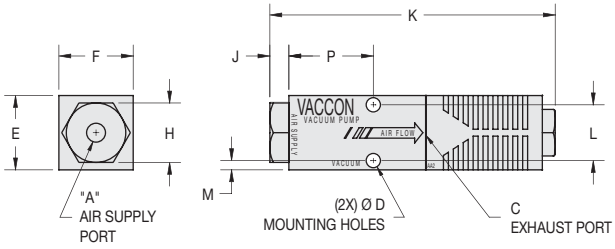
P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch w/Quick Disconnect
VSMP-QD	Switch w/Quick Disconnect
VTMV-QD	Sensor w/Quick Disconnect

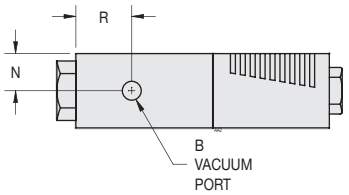
P/N	Silencer
	AA2 – Closed End (Standard)
-ST2	Straight-Through

For complete Performance Data, see page 148.

Standard Pump: VP00-60 (M or H)

VP00-60H with AA2 silencer.





Specifications:

Weight 0.86 oz [24.3g]
Noise Level 58dB

Model #	Imperial Dimensions (in.)													
VP00 w/AA2	A	B	C	D	E	F	H	J	K	L	M	N	P	R
	10-32 F	10-32 F	1/8 NPT F	0.12	0.63	0.63	0.49	0.16	2.40	0.47	0.08	0.31	0.71	0.47
Model #	**Metric Dimensions (mm)**													
I-VP00 w/AA2	A	B	C	D	E	F	H	J	K	L	M	N	P	R
	M5	M5	G 1/8	3.0	15.9	15.9	12.4	4.1	61.0	11.9	2.0	7.9	18.0	11.9

VP00 Pump Standard Specifications:

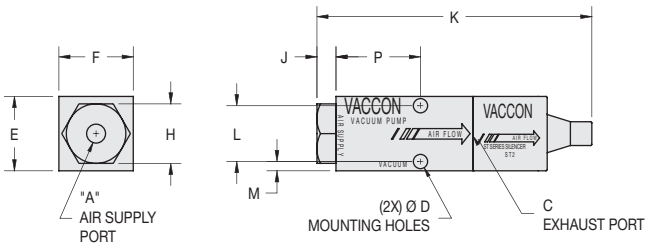
Pump Material: Anodized Aluminum (For silencer material, see pages 233-235)
Cartridge Material: Nylon, Buna-N O-ring (Other material available, see page 7)
Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature: 30°F~250°F [-34°~121°C]
Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

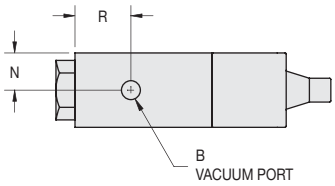
VP00 Operating and Installation Instructions:

Supply Line: Min. 5/32" [4mm], 1/4" O.D. [6mm] tube preferred for supply lines exceeding 3' [1M]
Control Valve: 3 way/2 position (faster part release), minimum orifice – 0.062" diameter [1.57mm]
Vacuum Line: 1/4" [6mm] tube preferred, for short runs 5/32" [4mm] may be used
Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF125LPM. See page 282.
Mounting: Mounting holes accept 4-40 or M3 screws

VP00-60 (M or H) Pump - Optional Silencer: ST2

VP00-60H with ST2 silencer.





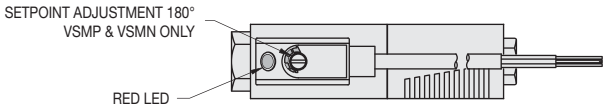
Specifications:

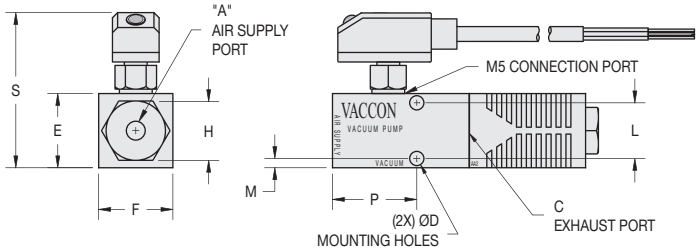
Weight	0.92 oz [26g]
Noise Level	68dB

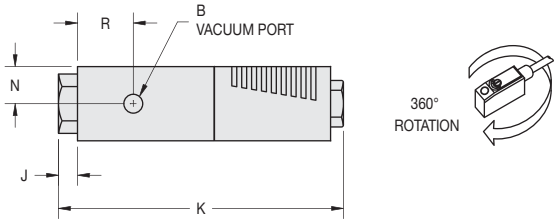
Model #	Imperial Dimensions (in.)													
VP00 w/ST2	A	B	C	D	E	F	H	J	K	L	M	N	P	R
	10-32 F	10-32 F	1/8 NPT F	0.12	0.63	0.63	0.49	0.16	2.40	0.47	0.08	0.31	0.71	0.47
Model #	**Metric Dimensions (mm)**													
I-VP00 w/ST2	A	B	C	D	E	F	H	J	K	L	M	N	P	R
	M5	M5	G 1/8	3.0	15.9	15.9	12.4	4.1	61.0	11.9	2.0	7.9	18.0	11.9

VP00-60 (M or H) Pump – Optional Switch/Sensor: VSMP, VSMN or VTMV

VP00-60H with VSMP switch. QD - Quick Disconnect available. See page 323 for QD,







Specifications:

Weight	1.8 oz [51g]
Noise Level	58dB

Model #	Imperial Dimensions (in.)														
VP00 w/ Switch or Sensor	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S
	10-32 F	10-32 F	1/8 NPT F	0.12	0.63	0.63	0.49	0.16	2.40	0.47	0.08	0.31	0.71	0.47	1.31
Model #	**Metric Dimensions (mm)**														
I-VP00 w/ Switch or Sensor	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S
	M5	M5	G 1/8	3.0	15.9	15.9	12.4	4.1	61.0	11.9	2.0	7.9	18.0	11.9	33.2

Mid-size Venturi Vacuum Pump with Interchangeable Cartridges and Silencer

Fastvac Mid Series: VP10

VP10-100H holds 4 tees for screen printing application

VP10-60M

Ideal Applications:

- Pick and place small part or medium size object
- End-of-Arm-Tooling/Robotic systems
- Packaging
- Vessel evacuation
- Vacuum clamping/holding fixtures

Features/Benefits

- Customize your pump performance with interchangeable venturi cartridges
- Safe operation – high flow, strong holding force
- High producivity – powerful vacuum up to 28"Hg [948mbar]
- Compact & lighweight – modular design speeds installation
- Efficient – minimal air consumption
- Reliable – operates trouble free:
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear or clog
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Standard Pump:

The VP10 Fastvac Mid Series air-powered venturi vacuum pumps are highly efficient, capable of reaching 28"Hg [948mbar], dirt tolerant, and include a silencer for quiet operation. Lightweight and compact, they can be easily mounted close to the vacuum point for fast response.

All Mid Series pumps incorporate Vaccon's interchangeable venturi cartridge system that allows designers to choose from 11 different cartridge assemblies to optimize pump performance to meet their sprecific application needs.

Performance Level Designations:

"**L**" 0-10"Hg [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg [0 to 677mbar] for medium vacuum/high flow applications

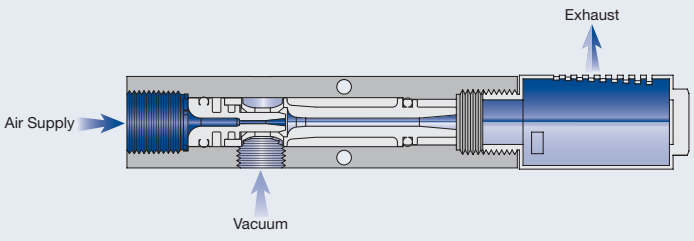
"**H**" 0-28"Hg [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Interchangeable venturi cartridges – 11 different performance levels
- Factory installed miniature vacuum switches/sensors for reliable part detection/optional quick disconects.
- Silencers– ST4 (straight-through) silencer won't clog. STAA4 silencers for ultra quiet operation.
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional.

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice, it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port, located between the nozzle and diffuser. The nozzle and diffuser combine to create a venturi vacuum cartridge.



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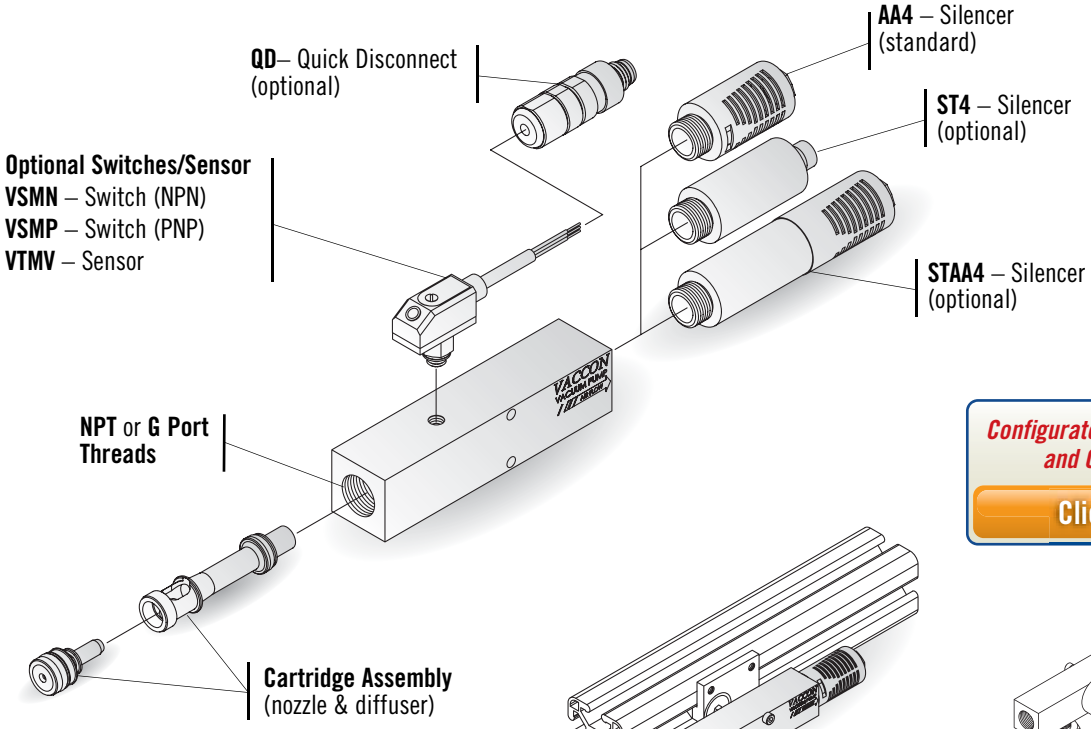
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

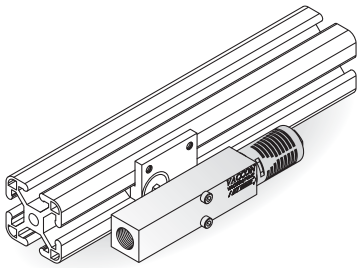
VP10- (60, 90, 100, 150) (L, M, H) Fastvac Mid Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

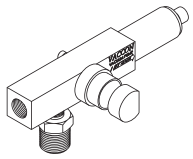


Configurator, CAD Drawings, and On-line Store

Click Here



VP10 pumps are Fractional and Metric T-Slot compatible. See EOAT Section.



Apple Core Mount available, see page 142.

How to Specify:

VP10 - 60 H - 60 - ST4 - ____

P/N	Thread
VP10	NPT
I-VP10	G Port

P/N	Max. Flow Level
-60	
-90	
-100	
-150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Operating Pressure
	80 PSI [5.5 Bar] (Std)
-60	60 PSI [4.0 Bar]

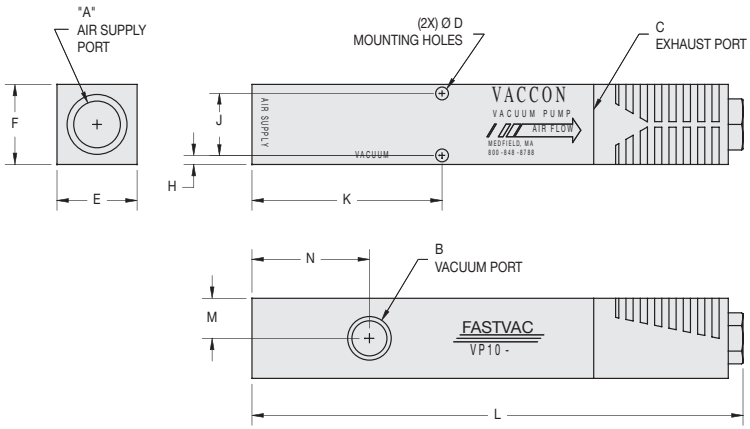
P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch – w/Quick Disconnect
VSMP-QD	Switch – w/Quick Disconnect
VTMV-QD	Sensor – w/Quick Disconnect

P/N	Silencer
	AA4 - Closed End (Standard)
ST4	Straight-Through
STAA4	Hybrid

For complete Performance Data, see page 150.

Standard Pump: VP10- (60, 90, 100, 150) (L, M, H)

VP10-100H with AA4 silencer.



Specifications:

Weight: 2.38 oz [67.5g]
Noise Level: 64dB

Model #	Imperial Dimensions (in.)											
VP10 w/AA4	A	B	C	D	E	F	H	J	K	L	M	N
	1/4 NPT F	1/8 NPT F	1/4 NPT F	0.12	0.75	0.75	0.09	0.58	1.78	4.60	0.38	1.10
Model #	**Metric Dimensions (mm)**											
I-VP10 w/AA4	A	B	C	D	E	F	H	J	K	L	M	N
	G 1/4	G 1/8	G 1/4	3.0	19.1	19.1	2.2	14.7	45.2	116.8	9.5	27.9

VP10 Pump Standard Specifications:

Pump Material: Anodized Aluminum (For silencer material, see pages 233-237)
Cartridge Material: Nylon, Buna-N O-ring (Other materials available - See page 7)
Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gasses
Operating Temperature: -30°~250° F [-34°~121°C]
Operating Pressure: 80 PSI [5.5 BAR] Standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

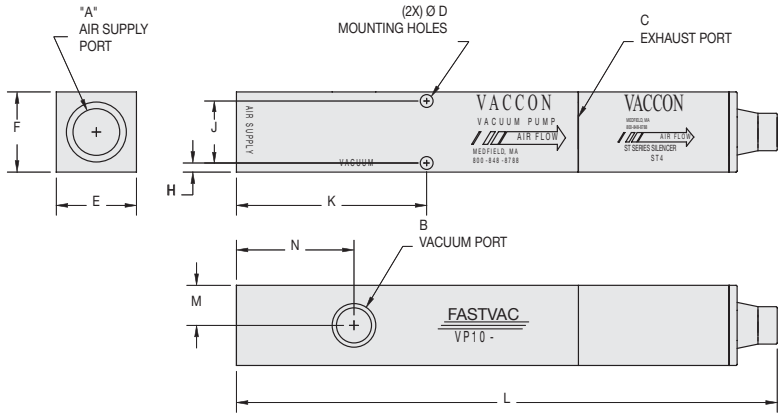
VP10 Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF125LPM. See page 282.
Control Valve: 3 way/2 position (faster part release), minimum orifice – 0.125 ID [3mm]
Mounting Holes: Mounting holes accept 4-40 [M3] screws

VP10- (60, 90, 100, 150) (L, M, H) - Optional Silencer: ST4

VP10-90M with ST4 silencer.



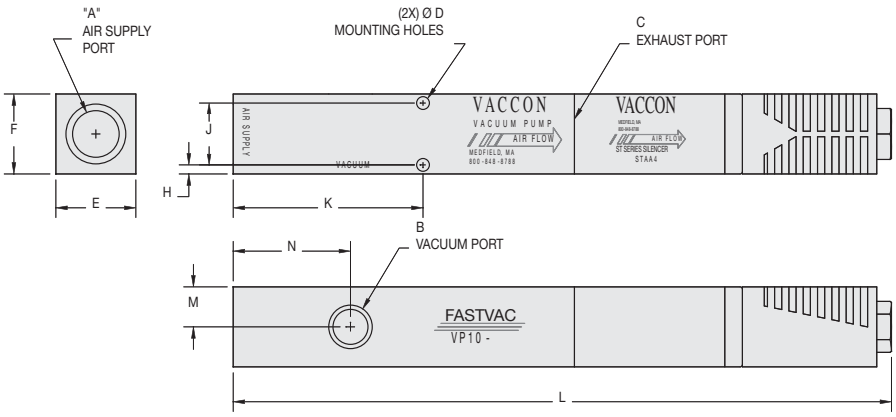
Specifications:

Weight: 2.47 oz [70 g]
Noise Level: 66dB

Model #	Imperial Dimensions (in.)											
VP10 w/ST4	A	B	C	D	E	F	H	J	K	L	M	N
	1/4 NPT F	1/8 NPT F	1/4 NPT F	0.12	0.75	0.75	0.09	0.58	1.78	5.06	0.38	1.10
Model #	**Metric Dimensions (mm)**											
I-VP10 w/ST4	A	B	C	D	E	F	H	J	K	L	M	N
	G 1/4	G 1/8	G 1/4	3.0	19.1	19.1	2.2	14.7	45.2	128.5	9.5	27.9

VP10- (60, 90, 100, 150) (L, M, H) - Optional Silencer: STAA4

VP10-100H with STAA4 silencer.



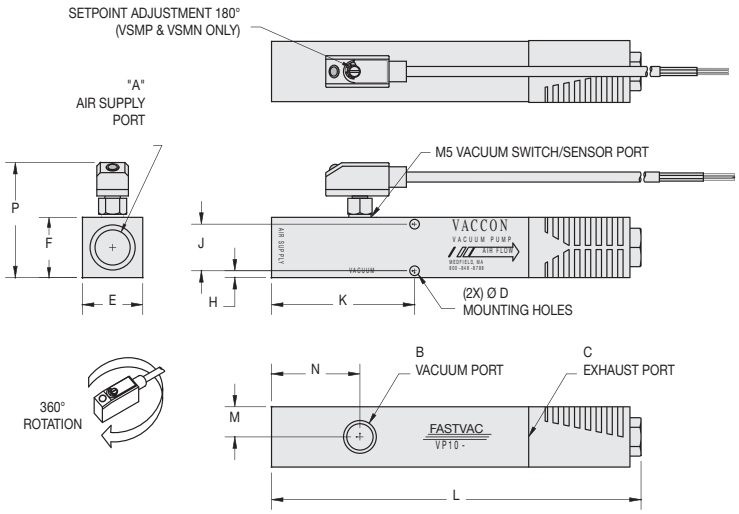
Specifications:

Weight: 2.84 oz [80.6 g]
Noise Level: 58dB

Model #	Imperial Dimensions (in.)											
VP10 w/STAA4	A	B	C	D	E	F	H	J	K	L	M	N
	1/4 NPT F	1/8 NPT F	1/4 NPT F	0.12	0.75	0.75	0.09	0.58	1.78	6.17	0.38	1.10
Model #	**Metric Dimensions (mm)**											
I-VP10 w/STAA4	A	B	C	D	E	F	H	J	K	L	M	N
	G 1/4	G 1/8	G 1/4	3.0	19.1	19.1	2.2	14.7	45.2	156.8	9.5	27.9

VP10- (60, 90, 100, 150) (L, M, H) - Optional Switch/Sensor: VSMP or VSMN – VTMV

VP10 with VSMP Switch. Optional QD-Quick Disconnect available - See page 323.



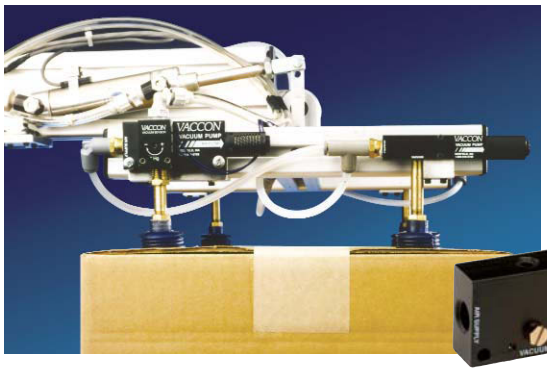
Specifications:

Weight: 3.33 oz [94.3g]
Noise Level: 64dB

Model #	Imperial Dimensions (in.)												
VP10 w/Sensor or Switch	A	B	C	D	E	F	H	J	K	L	M	N	O
	1/4 NPT F	1/8 NPT F	1/4 NPT F	0.12	0.75	0.75	0.09	0.58	1.78	4.60	0.38	1.10	1.44
Model #	**Metric Dimensions (mm)**												
I-VP10 w/Sensor or Switch	A	B	C	D	E	F	H	J	K	L	M	N	O
	G 1/4	G 1/8	G 1/4	3.0	19.1	19.1	2.2	14.7	45.2	116.8	9.5	27.9	36.6

Mid-size Venturi Vacuum Pump with Interchangeable Cartridges and Silencer

Fastvac Mid Series: VP20



VP20-90M pump with SX-5 switch monitors presence of box. No filters required.

VP20-150H with optional ports for vacuum gauge and sensor/switch

Ideal Applications:

- Pick and place small or medium size objects
- End-of-Arm-Tooling/Robotic systems
- Packaging
- Bag/box opening
- Vessel evacuation
- Vacuum clamping/holding fixtures

Features/Benefits

- Customize your pump performance with interchangeable venturi cartridges
- Safe operation – high flow, overcomes leakage providing a strong holding force
- Mounts easily – square body, compact and lighweight
- High producivity – powerful vacuum up to 28"Hg [948mbar]
- Fast response – installs close to vacuum point
- Reliable – operates trouble free:
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear or clog
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Standard Pump:

VP20 Fastvac Mid Series air-powered venturi vacuum pumps are the most commonly used pumps for pick and place applications due to their ease of mounting and the variety of options and accessories available.

Vaccon Mid Series vacuum pumps provide maximum design versatility: designers specify only the features necessary for their specific application. Vaccon's interchangeable venturi cartridge system enhances manufacturing flexibility, enabling designers to choose the vacuum level, vacuum flow, evacuation speed and air consumption based on any one of 11 venturi cartridges.

Performance Level Designations:

"**L**" 0-10"Hg [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg [0 to 677mbar] for medium vacuum/high flow applications

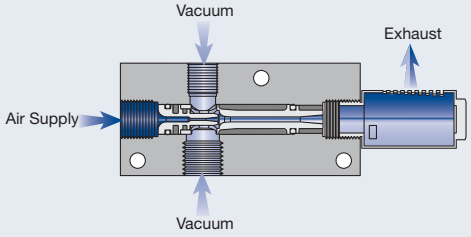
"**H**" 0-28"Hg [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Interchangeable venturi cartridges – 11 different performance levels
- Vacuum sensors/switches provide electrical signal for vacuum achieved/part present, will interface with PLC's and computerized control systems, optional quick disconnects available
- Vacuum guages – provides visual monitoring, helpful when setting vacuum sensor and troubleshooting
- Silencers – ST4 (straight-through) silencer won't clog. STAA4 silencers for ultra quiet operation
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] option)

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice, it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port, located between the nozzle and diffuser. The nozzle and diffuser combine to create a venturi vacuum cartridge.



Eliminate the Guesswork: Contact Us!

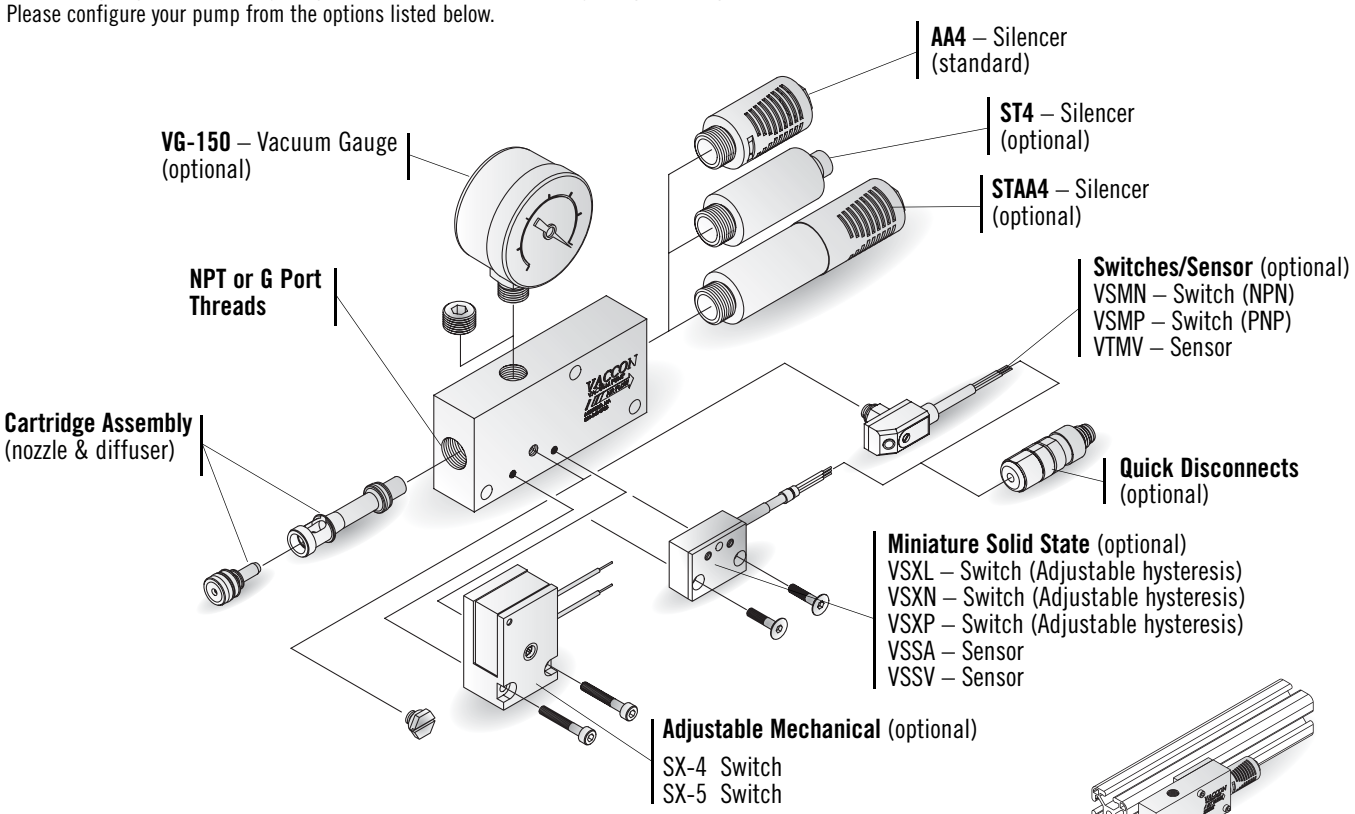
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

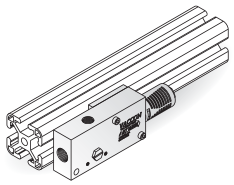
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

VP20- (60, 90, 100, 150) (L, M, H) Fastvac Mid Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.





VP20 pumps are Fractional and Metric T-Slot compatible. See EOAT Section.

How to Specify:

VP20 - 60 H - 60 - ST4 - VSMP-QD

P/N	Thread
VP20	NPT
I-VP20	G Port

P/N	Max. Flow Level
-60	
-90	
-100	
-150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Operating Pressure
	80 PSI [5.5 Bar] (Std)
-60	60 PSI [4.0 Bar]

P/N	Vacuum Gauge
VG-150	Vaccon does not recommend shipping gauges attached to pumps. Please specify as a separate line item.

P/N	Switch/Sensor	w/Quick Disconnect
	None (Standard)	
VSMN	Switch – NPN	-QD
VSMP	Switch – PNP	-QD
VTMV	Sensor – 0-5VDC Output	-QD
VSSA	Sensor – 4-20mA Output	-QD
VSSV	Sensor – 0-5VDC Output	-QD
VSXL	Switch – Sinking	-QD
VSXN	Switch – Sinking	-QD
VSXP	Switch – Sourcing	-QD
SX-4	Switch – 2-14.8"Hg	N/A
SX-5	Switch – 7.4-30"Hg	N/A

P/N	Silencer
	AA4 - Closed End (Standard)
ST4	Straight-Through
STAA4	Hybrid

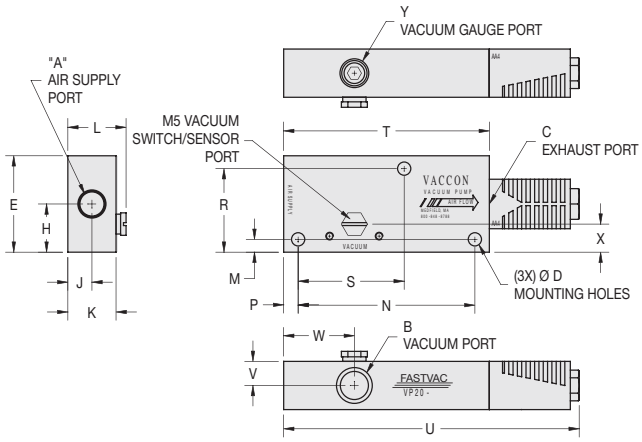
Configurator, CAD Drawings, and On-line Store

Click Here

For complete Performance Data, see page 150.

Standard Pump: VP20 - (60, 90, 100, 150) (L, M, H)

Standard VP20-90H with AA4 sliencer.



Specifications:

Weight: 5.1 oz [146g]
Noise Level: 64dB

Model #	Imperial Dimensions (in.)																				
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y
VP20 w/AA4	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	1.5	N/A	0.75	0.38	0.75	0.91	0.20	2.75	0.23	1.20	1.65	3.20	4.60	0.38	1.10	0.44	1/8 NPT F
Model #	**Metric Dimensions (mm)**																				
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y
I-VP20 w/AA4	G 1/4	G 1/4	G 1/4	5.2	38.1	N/A	19.1	9.5	19.1	23.0	5.1	69.9	5.7	30.5	41.9	81.3	116.8	9.5	27.9	11.1	G 1/8

VP20 Pump Standard Specifications:

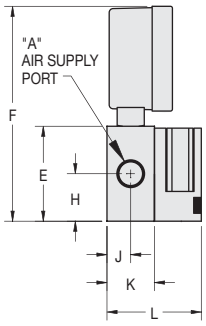
Pump Material: Anodized Aluminum (For silencer material, see pages 233-237)
Cartridge Material: Nylon, Buna-N O-ring (Other materials available, see page 7)
Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature: -30°~250° F [-34°~121°C]
Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

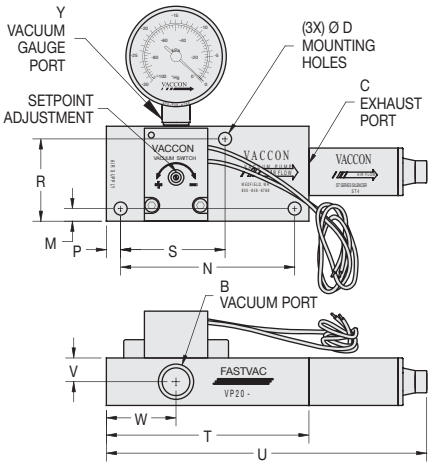
VP20 Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF125LPM. See page 282.
Control Valve: 3 way/2 position (faster part release), minimum orifice – 0.125 ID [3mm]
Mounting Holes: Mounting holes accept 10-32 or M5 screws

VP20 - (60, 90, 100, 150) (L, M, H) Optional ST4 Silencer, SX Switch and VG-150 Vacuum Gauge





VP20-60M with VG-150 vacuum gauge, ST4 silencer, and SX-4 vacuum switch.

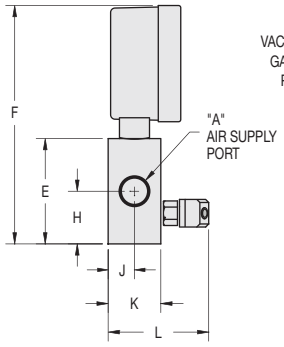
Specifications:

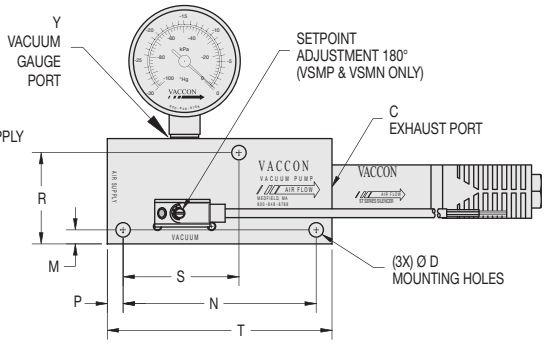
Weight: 8.4 oz [238g]
Noise Level: 66dB

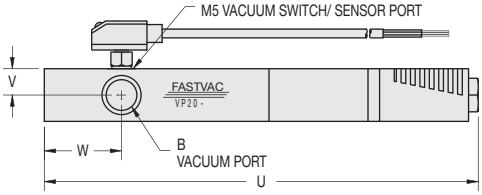
Model #	Imperial Dimensions (in.)																				
VP20-ST4, VG150, SX Switch	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y
	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	1.50	3.40	0.75	0.38	0.75	1.49	0.20	2.75	0.23	1.20	1.65	3.20	5.06	0.38	1.10	N/A	1/8 NPT F
Model #	**Metric Dimensions (mm)**																				
I-VP20-ST4, VG150, SX Switch	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y
	G 1/4	G 1/4	G 1/4	5.2	38.1	86.2	19.1	9.5	19.1	37.8	5.1	69.9	5.7	30.5	41.9	81.3	128.5	9.5	27.9	N/A	G 1/8

VP20 - (60, 90, 100, 150) (L, M, H) Optional STAA4 Silencer, Ultra-Mini Switch/Sensor and VG-150 Vacuum Gauge

VP20-100M with STAA4 silencer, VSMP ultra-mini switch, and a VG-150 vacuum gauge.







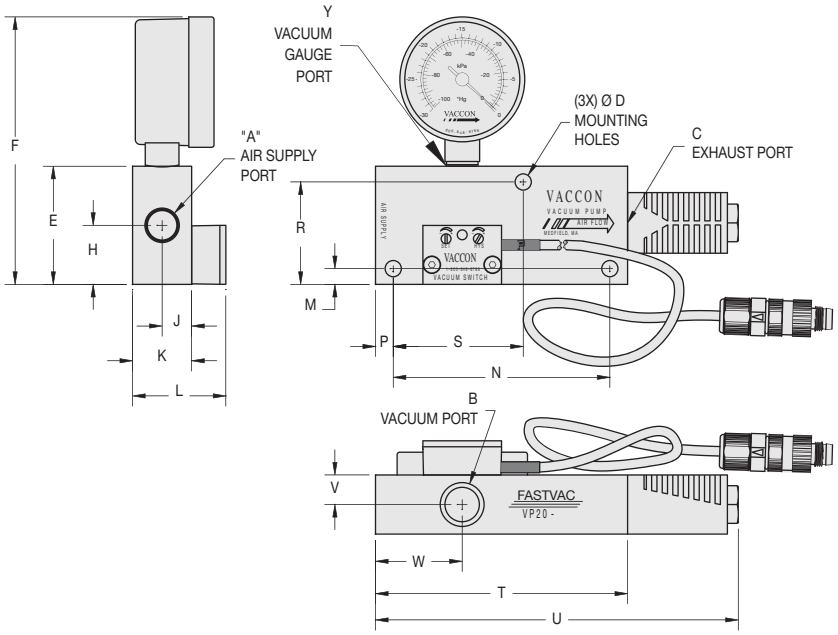
Specifications:

Weight: 8.0 oz [227g]
Noise Level: 68dB

Model #	Imperial Dimensions (in.)																				
VP20-STAA4, VG150, Ultra-Mini Switch	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y
	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	1.50	3.40	0.75	0.38	0.75	1.43	0.20	2.75	0.23	1.20	1.65	3.20	6.18	0.38	1.10	N/A	1/8 NPT F
Model #	**Metric Dimensions (mm)**																				
I-VP20-STAA4, VG150, Ultra-Mini Switch	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y
	G 1/4	G 1/4	G 1/4	5.2	38.1	86.2	19.1	19.5	19.1	36.4	5.1	69.9	5.7	30.5	41.9	81.3	157.0	9.5	27.9	N/A	G 1/8

VP20 - (60, 90, 100, 150) (L, M, H) Optional Solid State Sensor/Switch, Quick Disconnect and VG-150 Vacuum Gauge

VP20-150H with AA4 silencer, VSXN vacuum sensor, VG-150 vacuum guage, and QD8-3M Quick Disconnect.



Specifications:

Weight: 7.8 oz [220g]
Noise Level: 68dB

Model #	Imperial Dimensions (in.)																				
VP20-AA4, MiniSwitch-QD VG150	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y
	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	1.50	3.40	0.75	0.38	0.75	1.18	0.20	2.75	0.23	1.20	1.65	3.20	4.61	0.38	1.10	N/A	1/8 NPT F
Model #	**Metric Dimensions (mm)**																				
I-VP20-AA4, MiniSwitch-QD VG150	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y
	G 1/4	G 1/4	G 1/4	5.2	38.1	86.2	19.1	9.5	19.1	30.1	5.1	69.9	5.7	30.5	41.9	81.3	117.0	9.5	27.9	N/A	G 1/8

Max-size Venturi Vacuum Pump with Silencer

Fastvac Max Series: VP80-200

VP80-200H transfers boxes for palletizing operation

VP80-200H

Ideal Applications:

- Pick and place medium to large size objects
- End-of-Arm Tooling/Robotics
- Vessel evacuation – molds/tanks/bottles/drums
- Packaging – bag/box/carton folding and handling
- Vacuum clamping/holding – fixtures, veneers
- Vacuum filling/bottling operations

Features/Benefits:

- High performance – powerful vacuum up to 28"Hg [948mbar]
- Compact & lightweight, rugged body construction
- Fast response – mounts close to vacuum point
- Efficient – minimal air consumption
- Safe operation
  - ~ No electricity needed at the pump
  - ~ High flow overcomes leakage – maintains a strong holding force
- Reliable – operates trouble free:
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear or clog
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Standard Pump:

The VP80-200 Fastvac Max Series air-powered venturi vacuum pumps provide high vacuum flow rates for the rapid evacuation of large volumes of air or for overcoming leakage in order to sustain high vacuum levels while handling porous materials.

Highly efficient, capable of reaching 28"Hg [948mbar], the VP80's are also dirt tolerant and include a straight-through silencer for quiet operation. Unlike the Mid Series pumps that use interchangeable cartridge assemblies, the Max Series pumps (VP80 & VP90's) use a non-removable press-fit venturi assembly.

Performance Level Designations:

"**L**" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

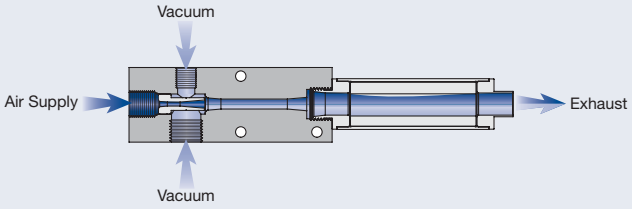
"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Vacuum gauge
- Silencers: STAA6 for ultra-quiet operation, FA-51-3/8 for high flow applications
- G port threads for metric machines – products with an "I" prefix designates metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice, it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port, located between the nozzle and diffuser. The nozzle and diffuser combine to create a venturi vacuum cartridge.



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For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

VP80-200 (L, M, H) Fastvac Max Series Configurations and Options:

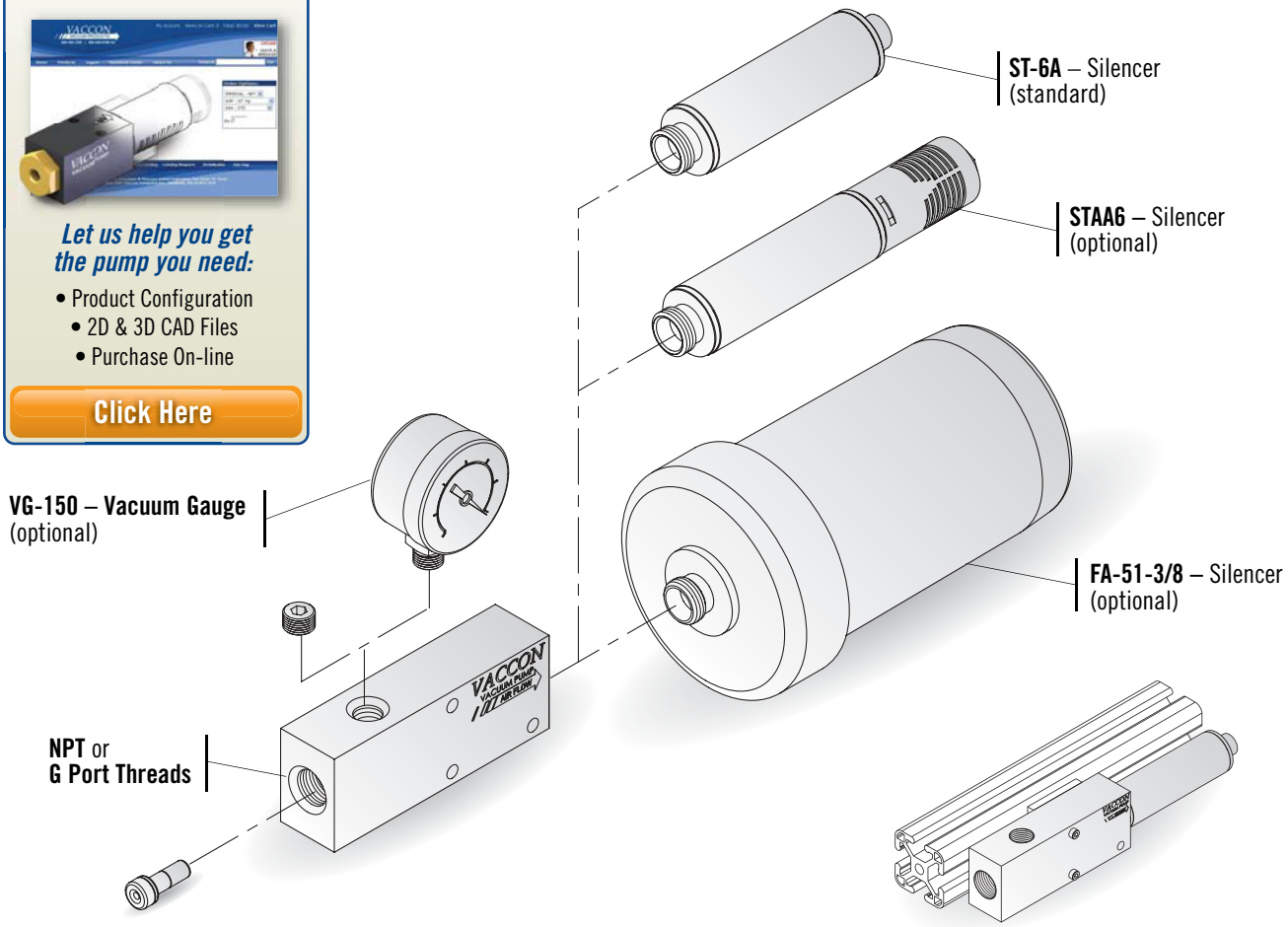
All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here



VP80-200 pumps are Fractional and Metric T-slot compatible. See EOAT Section.

How to Specify:

VP80-200 - H - ___ - ___

P/N	Thread
VP80-200	NPT
I-VP80-200	G-Port

P/N	Max. Vac Level
L	10"Hg [339 mbar]
M	20"Hg [677 mbar]
H	28"Hg [948 mbar]

P/N	Silencer
	ST-6A Straight-Through (Standard)
STAA6	Hybrid
FA-51-3/8	High Flow

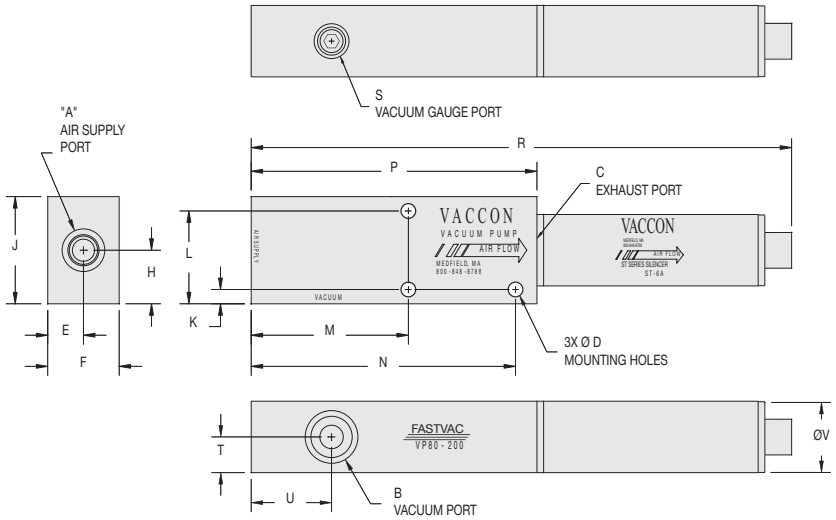
P/N	Operating Pressure
	80 PSI [5.5 Bar] (Standard)
-60	60 PSI [4.0 Bar]

P/N	Vacuum Gauge
VG-150	Vaccon does not recommend shipping gauges attached to pumps. Please specify as a separate line item.

For complete Performance Data, see page 153.

Standard Pump: VP80-200 (L, M, H)

Standard VP80-200M with ST-6A silencer.



Specifications:

Weight	10.2 oz [290 g]
Noise Level	72dB

Model #	Imperial Dimensions (in.)																	
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V
VP80-200	1/4 NPT F	3/8 NPT F	3/8 NPT F	0.21	0.50	1.00	0.75	1.50	0.20	1.30	2.20	3.70	4.00	7.57	1/8 NPT F	0.50	1.13	0.98
Model #	**Metric Dimensions (mm)**																	
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V
I-VP80-200	G 1/4	G 3/8	G 3/8	5.2	12.7	25.4	19.1	38.1	5.1	33.0	55.9	94.0	101.6	192.2	G 1/8	12.7	28.6	24.9

VP80-200 Pump Standard Specifications:

Pump Body Material: Anodized Aluminum (For silencer material, see pages 235-239)

Medium: Filtered (100 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -100°~ +400° F [-73°~ +204°C]

Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

VP80-200 Operating and Installation Instructions:

Supply Line: 3/8" O.D. [10mm] tube recommended

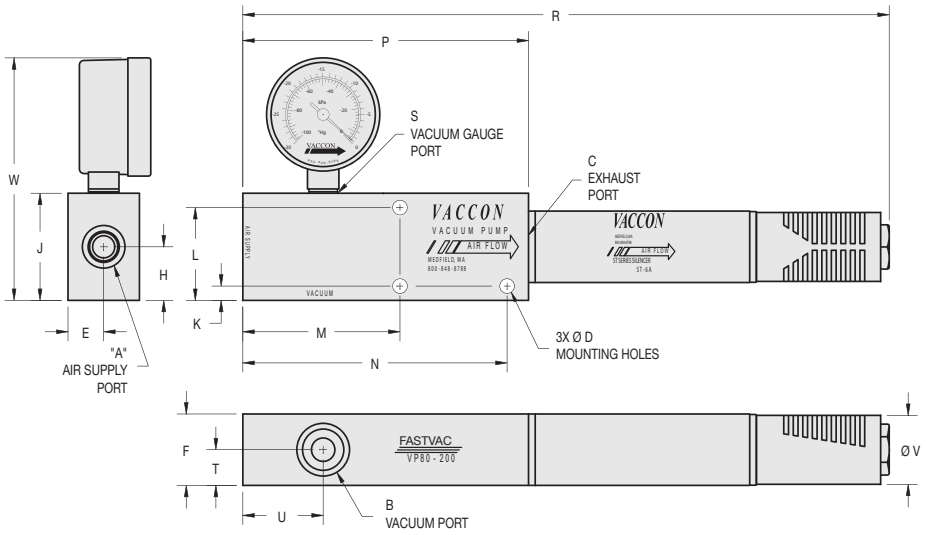
Vacuum Line: 3/8" O.D. [10mm] tube recommended

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF375F. See page 282.

Mounting: Mounting holes accept #10-32 or M5 screws

VP80-200 (L, M, H) Pump with optional STAA6 Silencer and VG-150 vacuum gauge

VP80-200H with optional STAA6 silencer and VG-150 vacuum gauge.



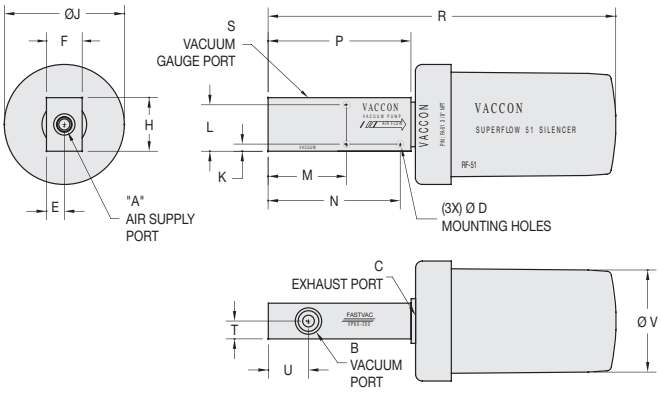
Specifications:

Weight: 10.5 oz [298g]
Noise Level: 65dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
VP80-200 w/STAA6	1/4 NPT F	3/8 NPT F	3/8 NPT F	0.21	0.50	1.00	0.75	1.50	0.20	1.30	2.20	3.70	4.00	9.05	1/8 NPT F	0.50	1.13	1.00	3.40
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
I-VP80-200 w/STAA6	G 1/4	G 3/8	G 3/8	5.2	12.7	25.4	19.1	38.1	5.1	33.0	55.9	94.0	101.6	229.9	G 1/8	12.7	28.6	25.4	86.2

VP80-200 (L, M, H) Pump with Optional FA-51-3/8 Silencer and VG-150 Vacuum Gauge

VP80-200H with FA-51-3/8 optional silencer and VG-150 Vacuum Gauge.



Specifications:

Weight: 1 lb. 5 oz [595g]
Noise Level: 72 dB

Model #	Imperial Dimensions (in.)																	
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V
VP80-200 w/FA-51-3/8	1/4 NPT F	3/8 NPT F	3/8 NPT F	0.21	0.50	1.00	1.50	3.36	0.20	1.30	2.20	3.70	4.00	9.74	1/8 NPT F	0.50	1.13	2.86
Model #	**Metric Dimensions (mm)**																	
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V
I-VP80-200 w/FA-51-3/8	G 1/4	G 3/8	G 3/8	5.2	12.7	25.4	38.1	85.3	5.1	33.0	55.9	94.0	101.6	247.3	G 1/8	12.7	28.6	72.6

Phone: 1-800-848-8788 or 508-359-7200 E-Mail: engineering@vaccon.com

Max-size Venturi Vacuum Pump with Silencer

Fastvac Max Series: VP80-250

VP80-250H

Standard Pump:

The VP80-250 Fastvac Max Series air-powered venturi vacuum pumps provide high vacuum flow rates for the rapid evacuation of large volumes of air or for overcoming leakage in order to sustain high vacuum levels while handling porous materials.

Highly efficient, capable of reaching 28"Hg [948mbar], the VP80's are dirt tolerant and include a silencer for quiet operation. Unlike the Mid series pumps that use interchangeable cartridge assemblies, the Max series pumps (VP80 & VP90's) use a non-removable press-fit venturi assembly.

Performance Level Designations:

"L" 0-10"Hg [0 to 339mbar] for low vacuum/high flow applications

"M" 0-20"Hg [0 to 677mbar] for medium vacuum/high flow applications

"H" 0-28"Hg [0 to 948mbar] for high vacuum/standard flow applications

Ideal Applications:

- Rapid evacuation of large volumes of air
- Pick and place medium to large size objects
- End-of-Arm Tooling/Robotics
- Vessel evacuation – molds/tanks/bottles/drums
- Packaging – bag/box/carton folding and handling
- Vacuum clamping/holding – fixtures, veneers

Features/Benefits:

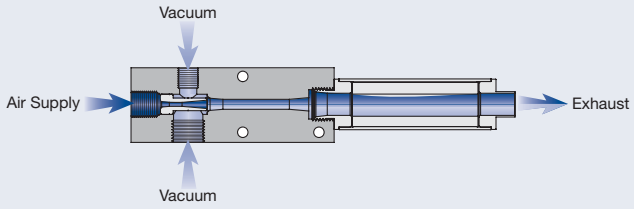
- High performance – powerful vacuum up to 28"Hg [948mbar]
- Compact & lightweight, rugged body construction
- Fast response – mounts close to vacuum point
- Efficient – minimal air consumption
- Safe operation
  - ~ No electricity needed at the pump
  - ~ High flow overcomes leakage – maintains a strong holding force
- Reliable – operates trouble free:
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear or clog
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Pump Options:

- Vacuum gauge
- Silencers: ST-8B with 90º elbow attachment for compact space requirements or ST-8A without elbow for ease of mounting, ST (straight-through silencers) allow dirt to pass through and won't clog, FA-51-1/2 silencer with elbow for high flow applications
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice, it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port, located between the nozzle and diffuser. The nozzle and diffuser combine to create a venturi vacuum cartridge.



Eliminate the Guesswork: Contact Us!

Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

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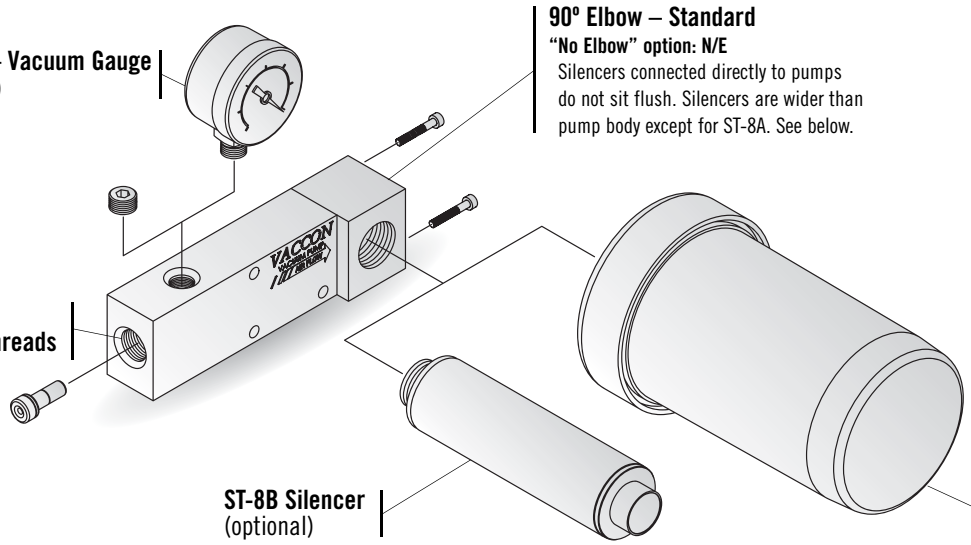
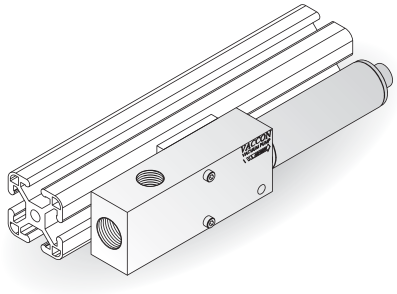
For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

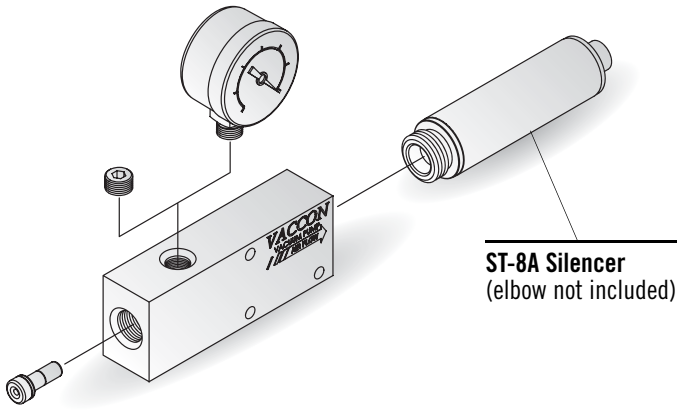
VP80-250 (L, M, H) Series Fastvac Max Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.





VP80-250 pumps are Fractional and Metric T-slot compatible. See EOAT Section.



How to Specify:

VP80-250 - H - 60 - ST8B

P/N	Thread
VP80-250	NPT
I-VP80-250	G-Port

P/N	Max. Vac Level
L	10"Hg [339 mbar]
M	20"Hg [677 mbar]
H	28"Hg [948 mbar]

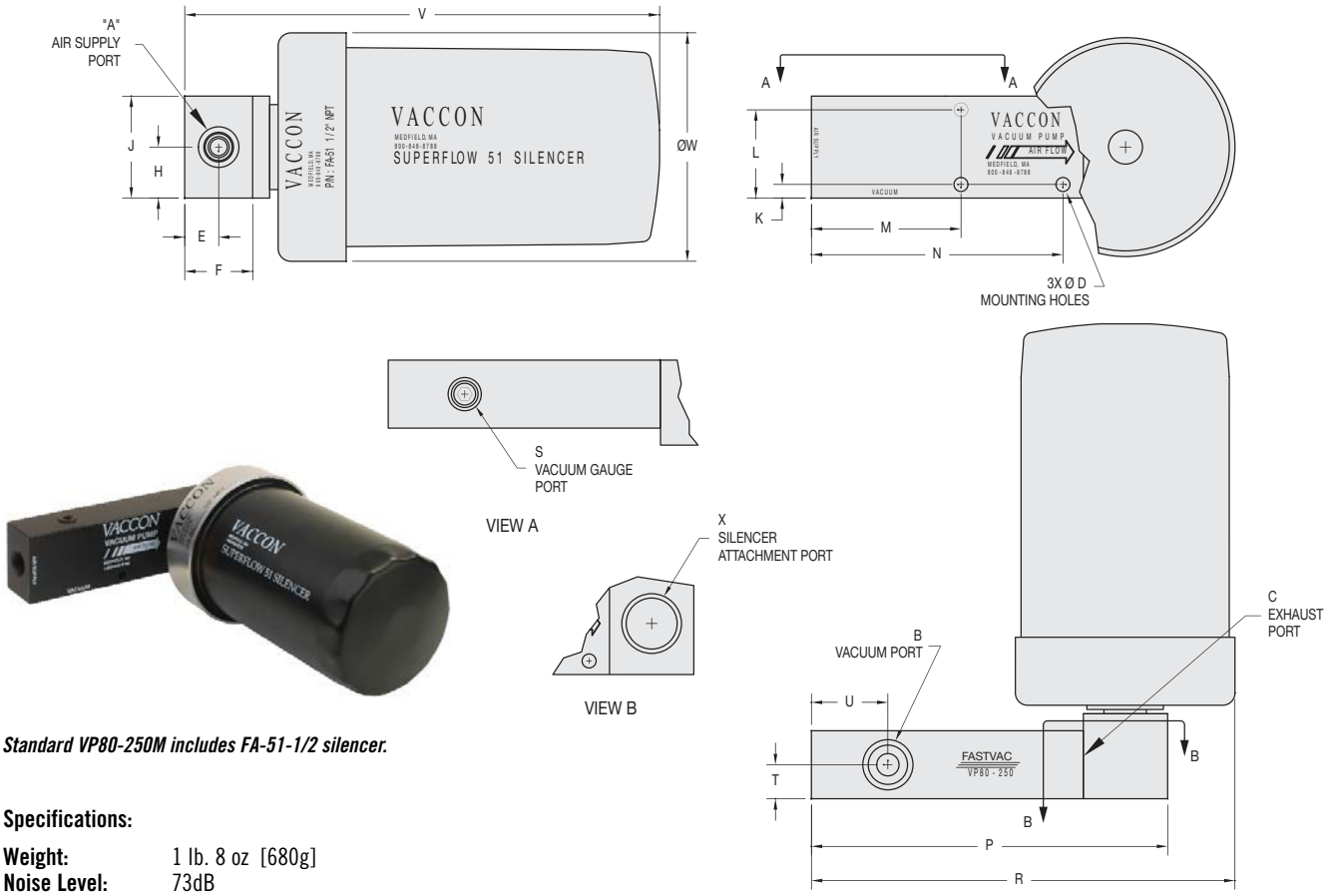
P/N	Vacuum Gauge
VG-150	Vaccon does not recommend shipping gauges attached to pumps. Please specify as a separate line item.

P/N	Silencer
	FA-51-1/2 - High Flow - Standard
N/E	FA-51-1/2 - No Elbow
ST-8B	Straight-Through With Elbow
ST-8A	Straight-Through No Elbow

P/N	Operating Pressure
	80 PSI [5.5 Bar] (Standard)
-60	60 PSI [4.1 Bar]

For complete Performance Data, see page 153.

Standard Pump: VP80-250 (L, M, H)



Standard VP80-250M includes FA-51-1/2 silencer.

Specifications:

Weight: 1 lb. 8 oz [680g]
Noise Level: 73dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
VP80-250	1/4 NPT F	3/8 NPT F	1/2 NPT F	0.21	0.50	1.0	0.75	1.50	0.20	1.30	2.20	3.70	5.24	6.23	1/8 NPT F	0.50	1.13	7.00	3.36	1/2 NPT F
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
I-VP80-250	G 1/4	G 3/8	G 1/2	5.2	12.7	25.4	19.1	38.1	5.1	33.0	55.9	94.0	133.1	158.2	G 1/8	12.7	28.6	177.8	85.3	G 1/2

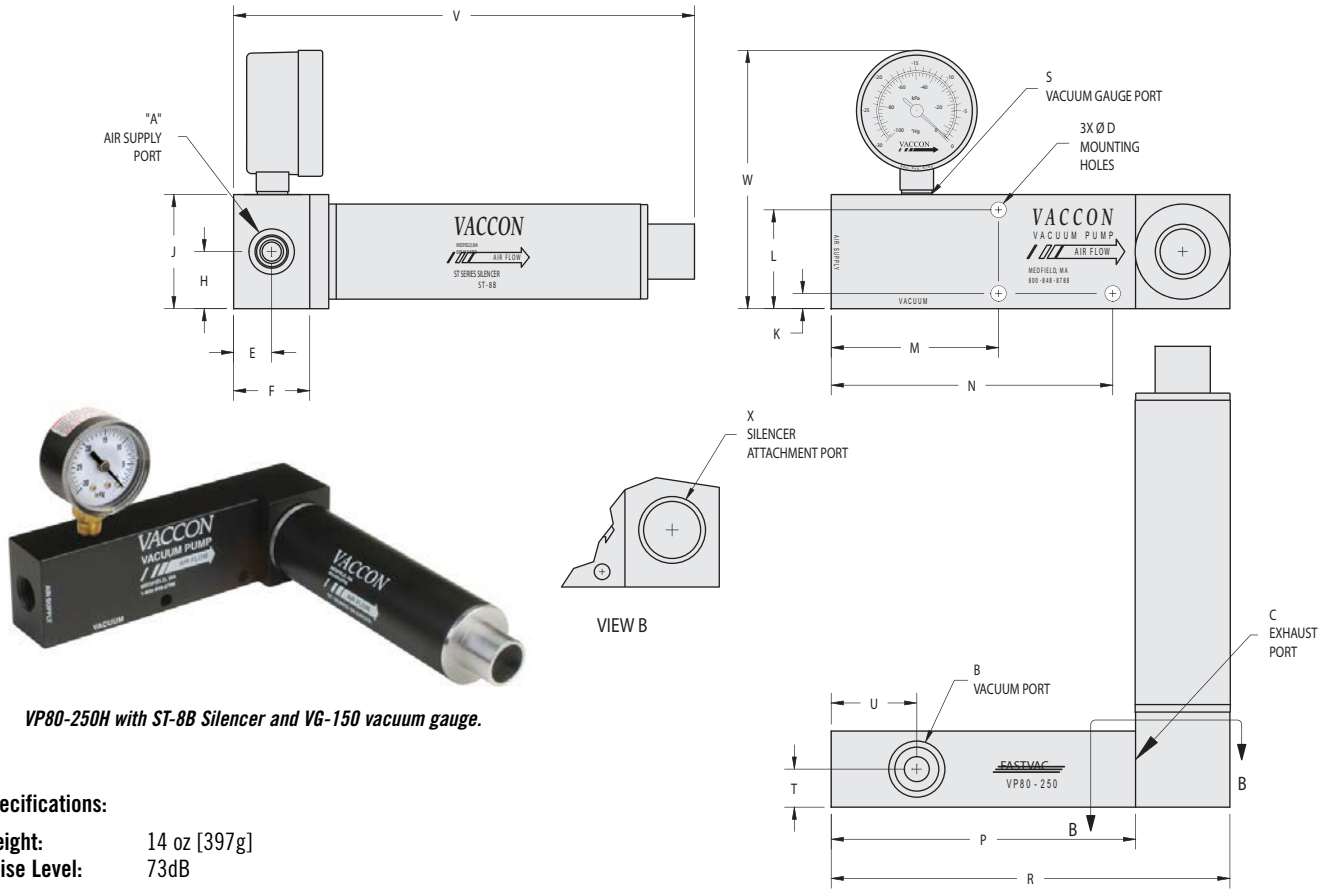
VP80-250 Pump Standard Specifications:

Pump Material: Anodized Aluminum (For silencer material, see pages 239-239)
Medium: Filtered (100 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature: -100°~ +400° F [-73°~ +204°C]
Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

VP80-250 Operating and Installation Instructions:

Supply Line: Minimum recommended – 3/8" O.D. (10mm) Preferred – 1/2" [12mm] OD tubing
Vacuum Line: Minimum recommended – 3/8" O.D. (10mm) Preferred – 1/2" [12mm] OD tubing
Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF375F. See page 282.
Mounting: Mounting holes accept #10-32 or M5 screws

VP80-250 (L, M, H) Pump with optional ST-8B Silencer



VP80-250H with ST-8B Silencer and VG-150 vacuum gauge.

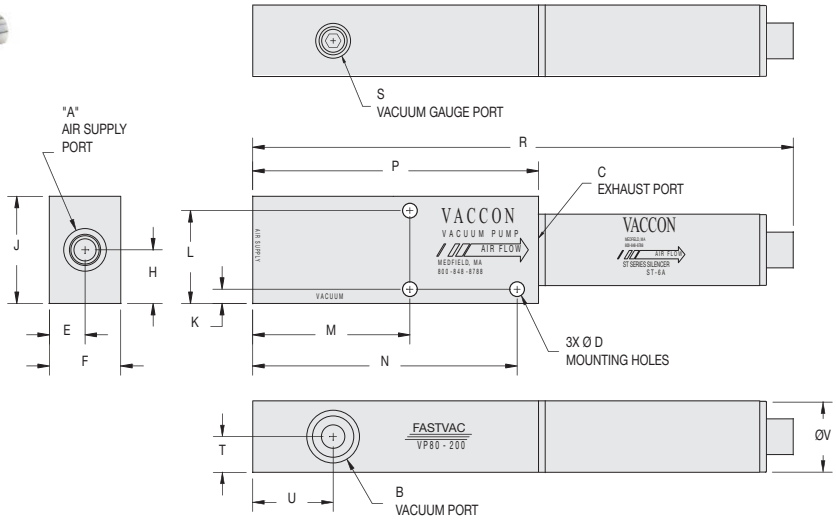
Specifications:

Weight: 14 oz [397g]
Noise Level: 73dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
VP80-250-ST8B	1/4 NPT F	3/8 NPT F	1/2 NPT F	0.21	0.50	1.00	0.75	1.50	0.20	1.30	2.20	3.70	4.00	5.24	1/8 NPT F	0.50	1.13	6.06	3.40	1/2 NPT F
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
I-VP80-250-ST8B	G 1/4	G 3/8	G 1/2	5.2	12.7	25.4	19.1	38.1	5.1	33.0	55.9	94.0	101.6	133.1	G 1/8	12.7	28.6	153.8	86.2	G 1/2

VP80-250 (L, M, H) Pump - Optional Silencer: ST-8A

VP80-250H with ST-8A silencer.



Specifications:

Weight: 10 oz [384g]
Noise Level: 75 dB

Model #	Imperial Dimensions (in.)																	
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V
VP80-250 w/ST8A	1/4 NPT F	3/8 NPT F	1/2 NPT F	0.21	0.50	1.00	0.75	1.50	0.20	1.30	2.20	3.70	4.00	7.57	1/8 NPT F	0.50	1.13	1.00
Model #	**Metric Dimensions (mm)**																	
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V
I-VP80-250 w/ST8A	G 1/4	G 3/8	G 1/2	5.2	12.7	25.4	19.1	38.1	5.1	33.0	55.9	94.0	101.6	192.3	G 1/8	12.7	28.6	25.4

Max-size Venturi Vacuum Pump with Silencer.

Fastvac Max Series: VP90-300 & 350

VP90-350M-ST8B handles dirty, heavy, irregular shaped products for the stonework industry

VP90-350H

Ideal Applications:

- Pick and place of large/heavy/porous objects
- Rapid evacuation of large volumes of air
- Vacuum filling
- Vessel evacuation
- One pump powers multiple vacuum cups
- End-of-Arm Tooling/Robotics
- Packaging – bag/box/carton folding and handling
- Vacuum clamping/holding – fixtures, veneers

Features/Benefits:

- High performance – powerful vacuum up to 28"Hg [948mbar]
- Compact & lightweight, rugged body construction
- Fast response – mounts close to vacuum point
- Efficient – minimal air consumption
- Safe operation
  - ~ No electricity needed at the pump
  - ~ High flow overcomes leakage – maintains a strong holding force
- Reliable – operates trouble free:
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear or clog
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Standard Pump:

The VP90-300 & 350 Fastvac Max Series air-powered venturi vacuum pumps provide high vacuum flow rates for the rapid evacuation of large volumes of air or for overcoming leakage in order to sustain high vacuum levels while handling porous materials.

Highly efficient, capable of reaching 28"Hg [948mbar], the VP90's are dirt tolerant and include a silencer for quiet operation. Unlike the Mid series pumps that use interchangeable cartridge assemblies, the Max series pumps (VP80 & VP90's) use a non-removable press-fit venturi assembly.

Performance Level Designations:

"**L**" 0-10"Hg [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg [0 to 677mbar] for medium vacuum/high flow applications

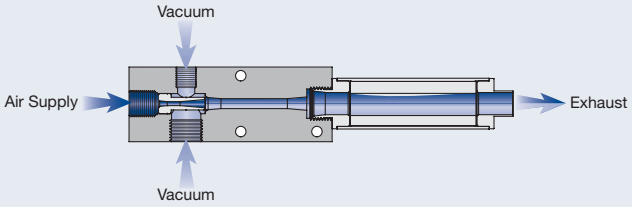
"**H**" 0-28"Hg [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Vacuum gauge
- Silencers: ST-8B – straight through silencer allows dirt to pass through, without clogging
- 90° elbow attachment for silencers for compact space requirements
- G port threads for metric machines – products with an "I" prefix designates metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional.

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice, it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port, located between the nozzle and diffuser. The nozzle and diffuser combine to create a venturi vacuum cartridge.



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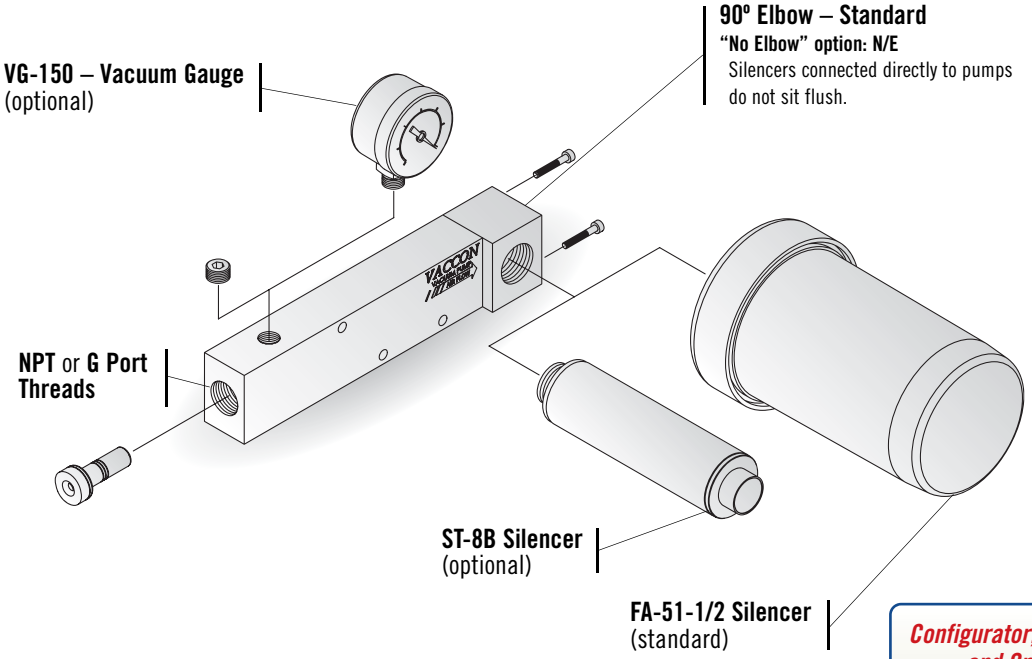
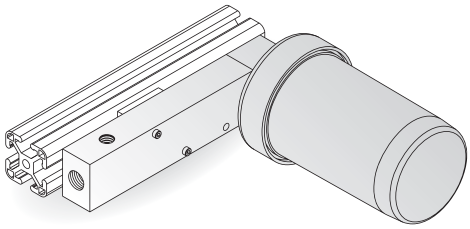
VP90-300 & 350 (L, M, H) Fastvac Max Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.





VP90-300 & 350 pumps are Fractional and Metric T-Slot compatible. See EOAT Section.

How to Specify:

VP90-300 - M - 60 - ST8B

P/N	Thread
VP90-300	NPT
I-VP90-300	G-Port
VP90-350	NPT
I-VP90-350	G-Port

P/N	Max. Vac Level
L	10"Hg [339 mbar]
M	20"Hg [677 mbar]
H	28"Hg [948 mbar]

P/N	Silencer
	FA-51-1/2 High Flow (Standard)
N/E	FA-51-1/2 - No Elbow
ST-8B	Straight-Through With Elbow
N/E-ST-8B	Straight-Through Without Elbow

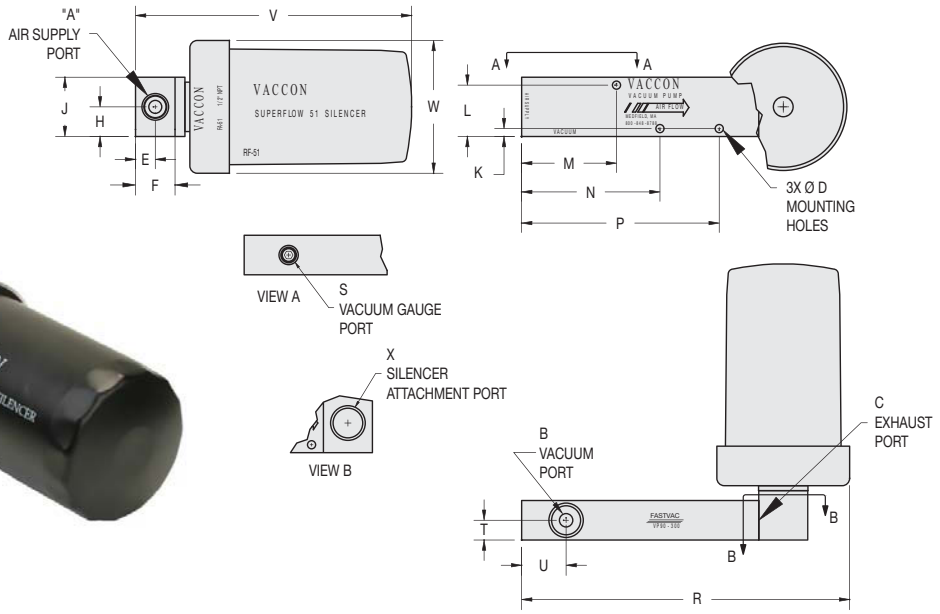
P/N	Operating Pressure
	80 PSI [5.5 Bar] (Standard)
-60	60 PSI [4.1 Bar]

P/N	Vacuum Gauge
VG-150	Vaccon does not recommend shipping gauges attached to pumps. Please specify as a separate line item.

For complete Performance Data, see page 153.

Standard: VP90-300 & VP90-350 (L, M, H) Pump

VP90-350H includes FA-51-1/2 silencer.



Specifications:

Weight	1lb 12 oz [794g]
Noise Level	70dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
VP90-300 or 350	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.21	0.50	1.00	0.75	1.50	0.20	1.30	2.40	3.50	5.00	8.30	1/8 NPT F	0.50	1.13	6.99	3.36	1/2 NPT F
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
I-VP90-300 or 350	G 3/8	G 1/2	G 1/2	5.2	12.7	25.4	19.1	38.1	5.1	33.0	61.0	88.9	127.0	210.8	G 1/8	12.7	28.6	177.4	85.3	G 1/2

VP90 Pump Standard Specifications:

Pump Material: Anodized Aluminum (For silencer material, see pages 235-239)

Medium: Filtered (100 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -100°~ +400° F [-73°~ +204°C]

Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

VP90 Operating and Installation Instructions:

Supply Line: Minimum recommended – 1/2" O.D. [12mm] OD tubing

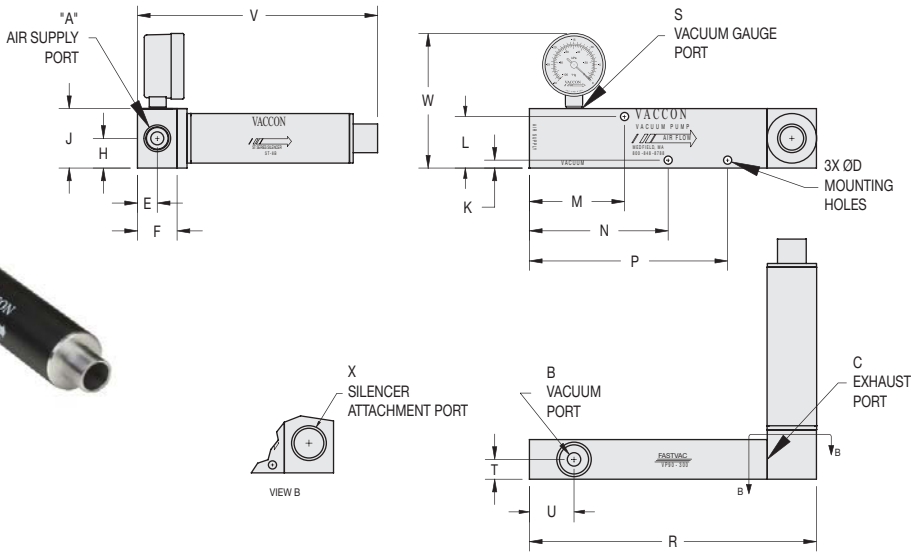
Vacuum Line: Minimum recommended – 1/2" O.D. tubing – Preferrred – 3/4" [22mm] for vacuum lines exceeding 3' [1M]

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF500F. See page 282.

Mounting: Mounting holes accept #10-32 or M5 screws

VP90-300 & VP90-350 (L, M, H) Pump with optional ST-8B Silencer and VG-150 Vacuum Gauge

VP90-350H with ST-8B silencer and VG-150 vacuum gauge.



Specifications:

Weight	1lb 3 oz [539g]
Noise Level	73dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
VP90-ST-8B	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.21	0.50	1.00	0.75	1.50	0.20	1.30	2.40	3.50	5.00	7.24	1/8 NPT F	0.50	1.13	6.06	3.40	1/2 NPT F
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
I-VP90-ST-8B	G 3/8	G 1/2	G 1/2	5.2	12.7	25.4	19.1	38.1	5.1	33.0	61.0	88.9	127.0	183.9	G 1/8	12.7	28.6	153.8	86.4	G 1/2

Multi-port Venturi Vacuum Pumps with Silencers

Multi-port Pumps: Mid Series VP10-MP

VP10-100H-MP with manifold blocks and cups removes injection molded parts.

VP10-90M-MP

Ideal Applications:

- End-of-Arm Tooling/Robotics
- Pick and place
- Flexible manufacturing
- Packaging – carton erecting, robotic palletizing
- Automation assembly

Features/Benefits

- High performance – vacuum up to 28"Hg [948mbar]
- High production – fast cycle times with shot to shot consistency
- High flow – maintains strong holding force, overcomes leakage
- *Home Run* plumbing – saves compressed air
- Easy mounting – fractional and metric T-slot compatible
- Time saving – pre-designed, factory assembled, quick installation
- Safe operation – no electricity needed at pump
- Reliable – non-clogging, trouble free operation

Vaccon's new Multi-port venturi vacuum pumps combine a venturi with a manifold to distribute vacuum to multiple locations. The result is a compact vacuum generation and distribution system for End-of-Arm Tools and applications where one pump powers multiple cups.

VP10-MP pumps have 4 vacuum ports that distribute vacuum equally to 4 locations with "Home-Run" plumbing. The streamlined design minimizes vacuum loss, maximizes vacuum flow and speeds cycle times for safe, efficient lifting operations.

In addition to the 4 topside vacuum ports, there is an additional port that can be plumbed to a compressed air source to provide a blow-off. The manifold design allows the one compressed air connection to feed blow-off air to all vacuum locations simultaneously, saving the need to plumb a separate blow-off line to each location.

An M5 threaded port allows you to connect a Vaccon miniature vacuum sensor/switch to provide an electrical signal for vacuum achieved/part present and to alert failures.

Performance Level Designations:

"**L**" 0-10"Hg [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg [0 to 677mbar] for medium vacuum/high flow applications

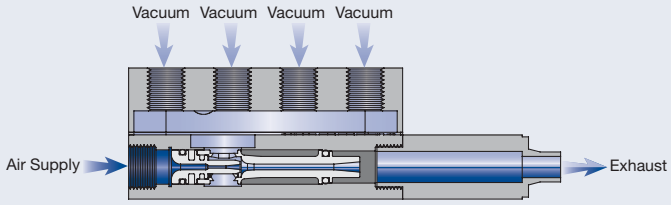
"**H**" 0-28"Hg [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Interchangeable venturi cartridges – 11 different performance levels (VP10 & VP20 Series only)
- Silencers - ST4 (straight-through) silencers won't clog, STAA4 silencers for ultra quiet operation
- Miniature sensors or switches with optional quick disconnects
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard (60 PSI [4.0 BAR] option)

Principles of Operation:

Vacuum is produced by supplying compressed air to a Mid series venturi cartridge and is distributed to the vacuum manifold ports, the switch/sensor port and the optional blow-off port if required.



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VP10- (60, 90, 100, 150) (L, M, H) -MP Series Configurations and Options:

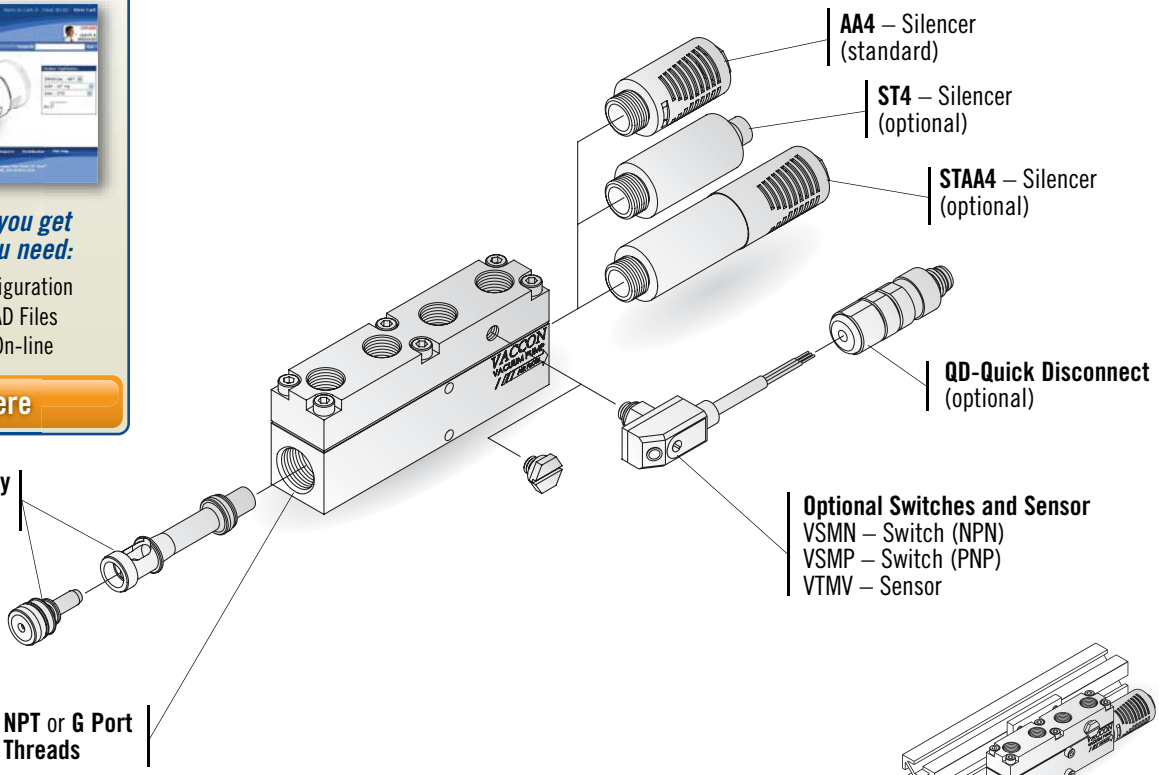
All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

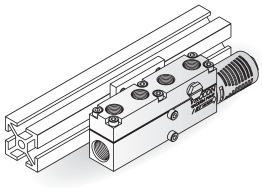
Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here





VP10-MP pumps are Fractional and Metric T-Slot compatible. See EOAT Section.

How to Specify:

VP10 - 60 H - 60 - MP - ST4 - VSMP-QD

P/N	Thread
VP10	NPT
I-VP10	G Port

P/N	Max. Flow Level
60	
90	
100	
150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch – w/Quick Disconnect
VSMP-QD	Switch – w/Quick Disconnect
VTMV-QD	Sensor– w/Quick Disconnect

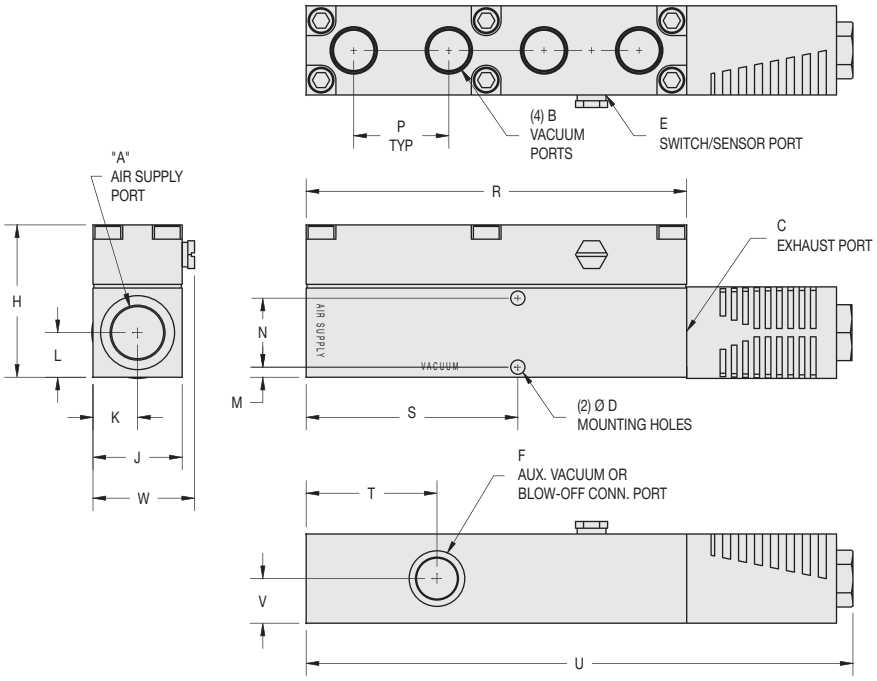
P/N	Silencer
	AA4 Closed-End (Standard)
ST4	Straight -Through
STAA4	Hybrid Silencer

P/N	Operating Pressure
	80 PSI [5.5 Bar] (Standard)
60	60 PSI [4.0 Bar]

For complete Performance Data, see page 150.

Standard Pump: VP10- (60, 90, 100, 150) (L, M, H)- MP

VP10-90H-MP



Specifications:

Weight 4.1 oz [115g]
Noise Level 62 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
VP10-MP w/AA4	1/4 NPT F	1/8 NPT F	1/4 NPT F	0.13	M5	1/8 NPT F	1.28	0.75	0.38	0.38	0.085	0.58	0.80	3.20	1.78	1.10	4.60	0.38	0.86
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
I-VP10-MP w/AA4	G 1/4	G 1/8	G 1/4	3.2	M5	G 1/8	32.5	19.1	9.5	9.5	2.16	14.7	20.3	81.3	45.2	27.9	116.8	9.5	21.7

VP10-MP Pump Standard Specifications:

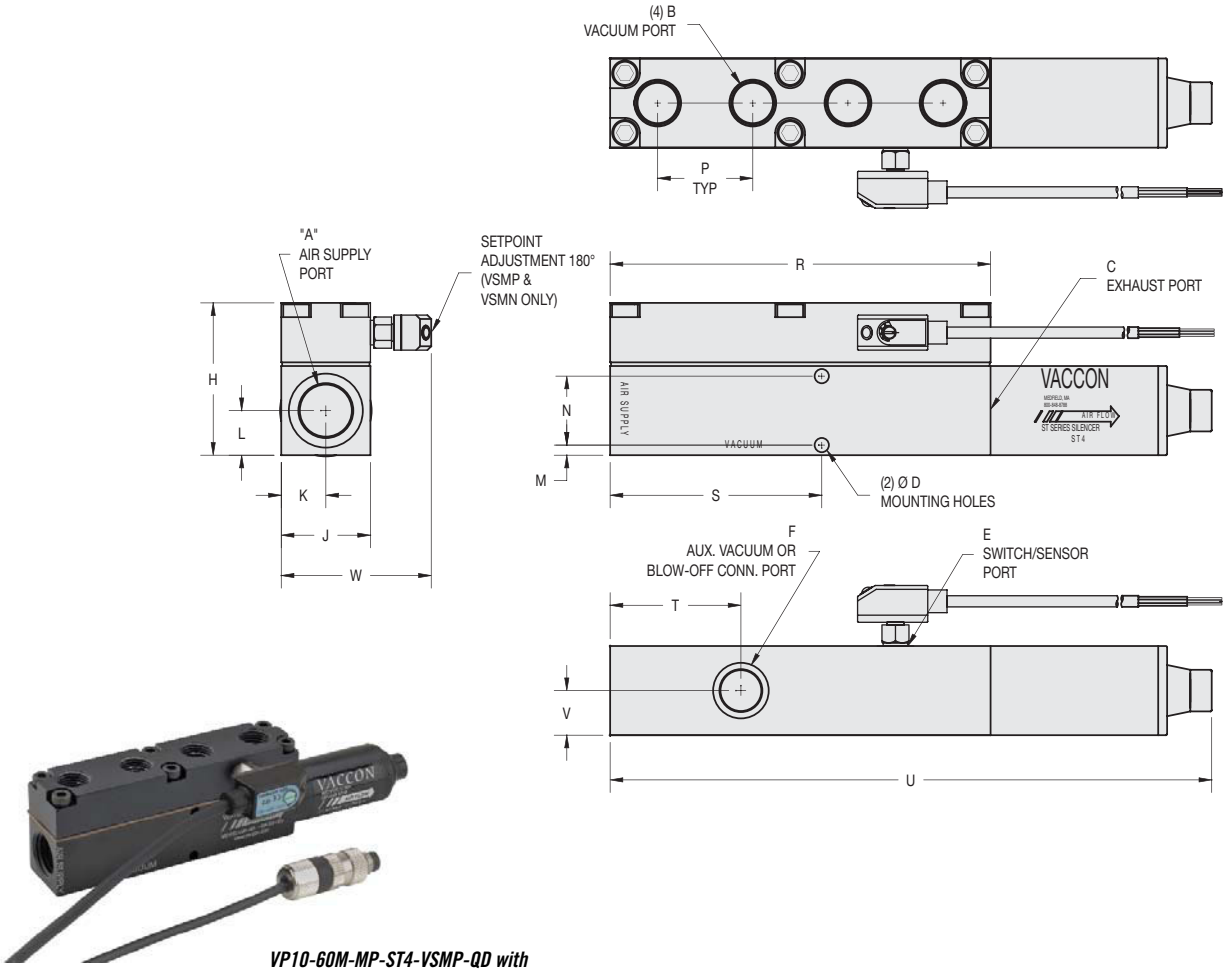
Pump Material: Anodized Aluminum (For silencer material, see pages 235-239)
Cartridge Material: Nylon, Buna-N O-ring (Other materials available, see page 7)
Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature: -30°~250° F [-34°~121°C]
Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

VP10-MP Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF125LPM. See page 282.
Control Valve: 3 way/2 position (faster part release), minimum orifice – 0.125" [3mm]
Mounting Holes: Mounting holes accept 4-40 [M3] screws

VP10-(60, 90, 100, 150) (L, M, H) -MP Optional ST4 Silencer, Ultra-Mini Switch/Sensor and QD-Quick Disconnect



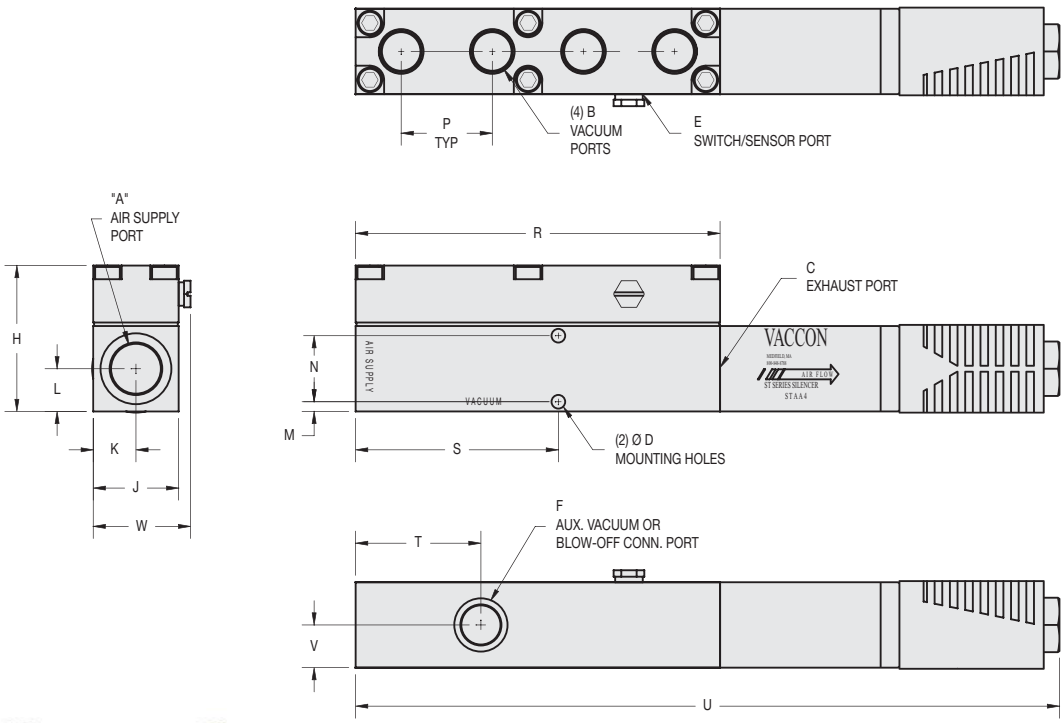
VP10-60M-MP-ST4-VSMP-QD with optional ST4 silencer, and vacuum switch with Quick Disconnect.

Specifications:

Weight 4.6 oz [131g]
Noise Level 68 dB

Model #	Imperial Dimensions (in.)																		
VP10-MP w/ST4, VSMP-QD	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
	1/4 NPT F	1/8 NPT F	1/4 NPT F	0.13	M5	1/8 NPT F	1.28	0.75	0.38	0.38	0.085	0.58	0.80	3.20	1.78	1.10	5.06	0.38	1.26
Model #	**Metric Dimensions (mm)**																		
I-VP10-MP w/ST4, VSMP-QD	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
	G 1/4	G 1/8	G 1/4	3.2	M5	G 1/8	32.5	19.1	9.5	9.5	2.16	14.7	20.3	81.3	45.2	27.9	128.5	9.5	32.0

VP10-(60, 90, 100, 150) (L, M, H) -MP – Optional STAA4 Silencer



VP10-60M-MP-STAA4 with optional STAA4 silencer.

Specifications:

Weight 4.5 oz [128g]
Noise Level 64 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
VP10-MP w/STAA4	1/4 NPT F	1/8 NPT F	1/4 NPT F	0.13	M5	1/8 NPT F	1.28	0.75	0.38	0.38	0.085	0.58	0.80	3.20	1.78	1.10	6.20	0.38	0.86
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
I-VP10-MP w/STAA4	G 1/4	G 1/8	G 1/4	3.2	M5	G 1/8	32.5	19.1	9.5	9.5	2.16	14.7	20.3	81.3	45.2	27.9	157.5	9.5	21.7

Multi-port Venturi Vacuum Pumps with Silencers

Multi-port Pumps: Mid Series VP20-MP

VP20-60M-MP with vacuum cup assembly transfers wooden plug spools for carpet roll application.

VP20-90H-MP

Ideal Applications:

- End-of-Arm Tooling/Robotics
- Pick and place
- Flexible manufacturing
- Packaging – carton erecting, robotic palletizing
- Automation assembly

Features/Benefits

- High performance – vacuum up to 28"Hg [948mbar]
- High production – fast cycle times with shot to shot consistency
- High flow – maintains strong holding force, overcome leakage
- Home Run plumbing – saves compressed air
- Easy mounting – fractional and metric T-slot compatible
- Time saving – pre-designed, factory assembled, quick installation
- Safe operation – no electricity needed at pump
- Reliable – non-clogging, trouble free operation

Vaccon's new Multi-port venturi vacuum pumps combine a venturi with a manifold to distribute vacuum to multiple locations. The result is a compact vacuum generation and distribution system for End-of-Arm Tools and applications where one pump powers multiple cups.

VP20-MP pumps have 4 vacuum ports that distribute vacuum equally to 4 locations with "Home-Run" plumbing. The streamlined design minimizes vacuum loss, maximizes vacuum flow and speeds cycle times for safe, efficient lifting operations.

In addition to the 4 topside vacuum ports, there is a port fitted with a 1.5" diameter glycerin filled vacuum gauge and another port that can be plumbed to a compressed air source to provide a blow-off. The manifold design allows one compressed air connection to feed blow-off air to all vacuum locations simultaneously, saving the need to plumb a separate blow-off line.

An M5 threaded port allows you to connect a Vaccon miniature vacuum sensor/switch to provide an electrical signal for vacuum achieved/part present and to alert failures.

Performance Level Designations:

"**L**" 0-10"Hg [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg [0 to 677mbar] for medium vacuum/high flow applications

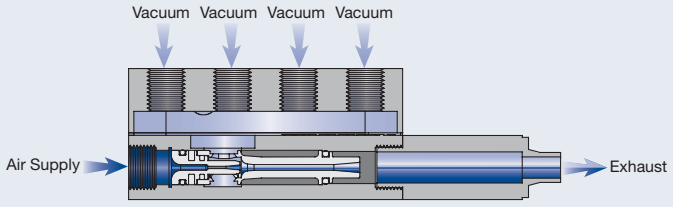
"**H**" 0-28"Hg [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Interchangeable venturi cartridges – 11 different performance levels – (VP10 & VP20 Series only)
- Silencers - ST4 (straight-through) silencers won't clog, STAA4 silencers for ultra quiet operation
- Miniature sensors or switches with optional quick disconnects
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard (60 PSI [4.0 BAR] option)

Principles of Operation:

Vacuum is produced instantly by supplying compressed air to a Mid series venturi cartridge and is distributed to the vacuum manifold ports, gauge port, switch/sensor port and the optional blow-off port if required.



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Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

VP20- (60, 90, 100, 150) (L, M, H) -MP Series Configurations and Options:

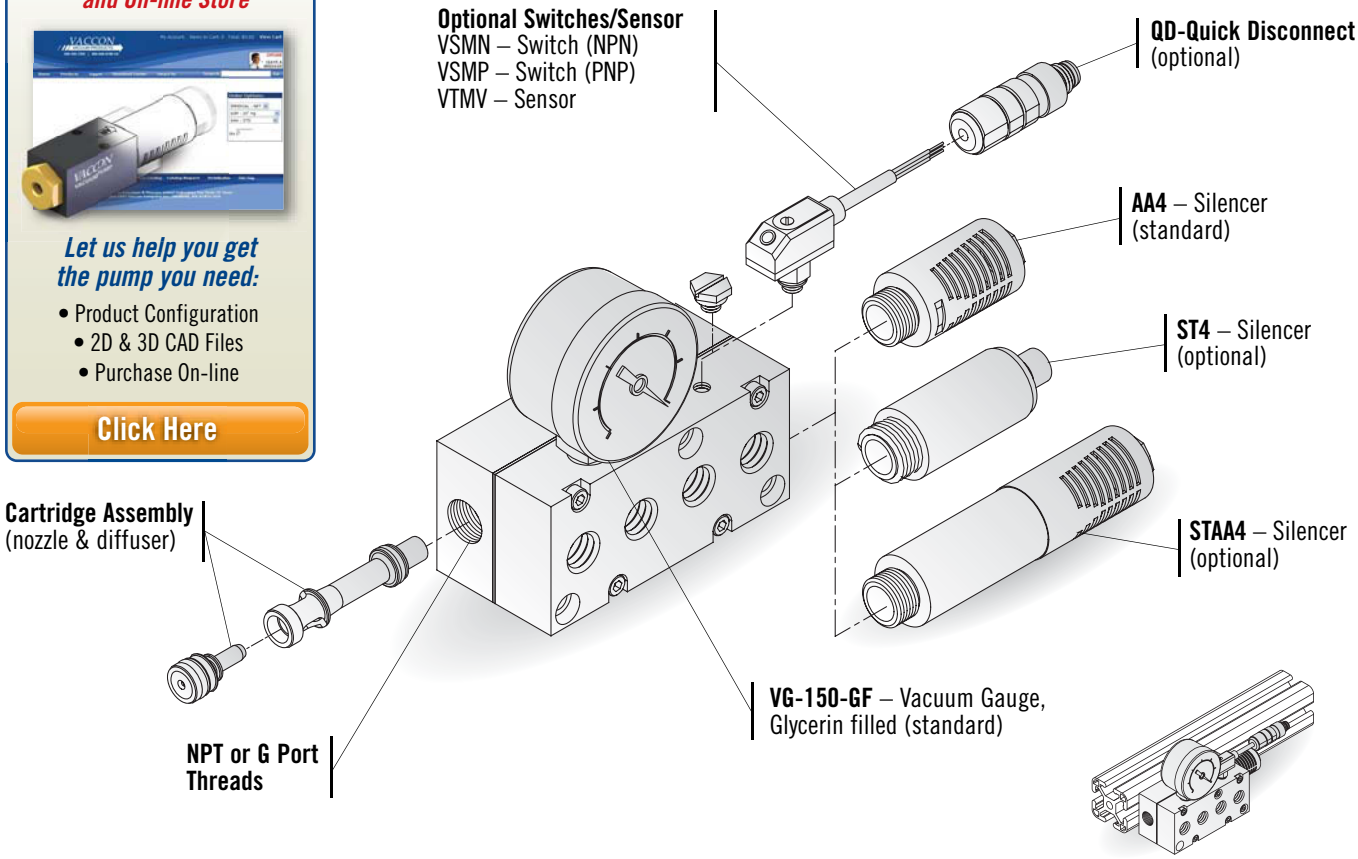
All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here



VP20-MP pumps are Fractional and Metric T-Slot compatible. See EOAT Section.

How to Specify:

VP20 - 60 H - 60 - MP - ST4 - VSMP-QD

P/N	Thread
VP20	NPT
I-VP20	G Port

P/N	Max. Flow Level
60	
90	
100	
150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch – w/Quick Disconnect
VSMP-QD	Switch – w/Quick Disconnect
VTMV-QD	Sensor – w/Quick Disconnect

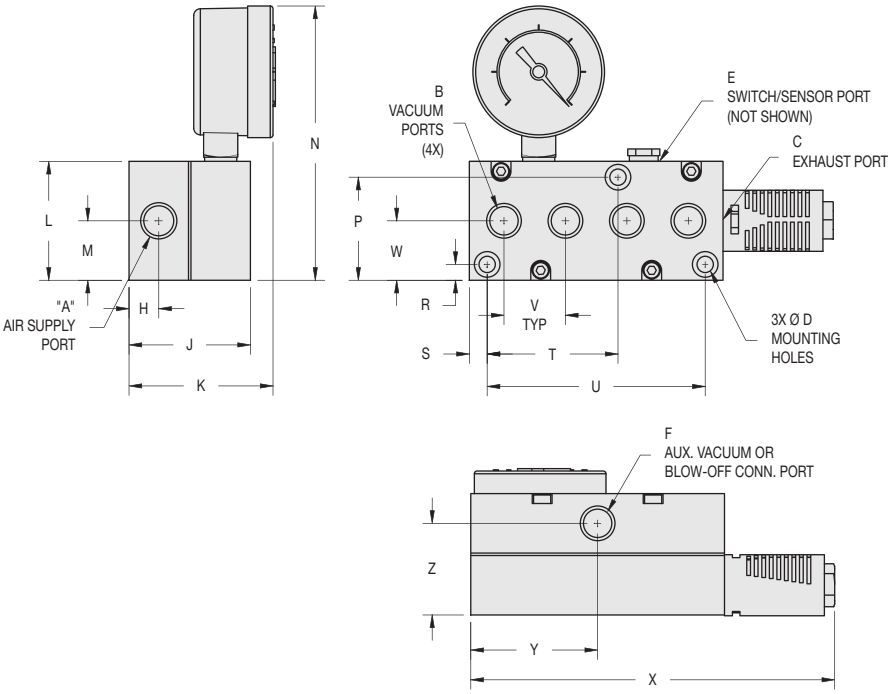
P/N	Silencer
	AA4 Closed-End (Standard)
ST4	Straight -Through
STAA4	Hybrid Silencer

P/N	Operating Pressure
	80 PSI [5.5 Bar] (Standard)
60	60 PSI [4.0 Bar]

For complete Performance Data, see page 150.

Standard Pump: VP20- (60, 90, 100, 150) (L, M, H) - MP

VP20-90H-MP



Specifications:

Weight	12 oz [340g]
Noise Level	64 dB

Model #	Imperial Dimensions (in.)																					
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
VP20-MP	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	M5	1/4 NPT F	0.38	1.53	1.82	1.50	0.75	3.46	1.30	0.20	0.23	1.65	2.75	0.78	0.75	4.59	1.60	1.16
Model #	**Metric Dimensions (mm)**																					
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
I-VP20-MP	G 1/4	G 1/4	G 1/4	5.2	M5	G 1/4	9.5	38.9	46.1	38.1	19.1	87.9	33.0	5.1	5.7	41.9	69.9	19.7	19.1	116.6	40.6	29.4

VP20-MP Pump Standard Specifications:

Pump Material: Anodized Aluminum (For silencer material, see pages 233-237)

Cartridge Material: Nylon, Buna-N O-ring (Other materials available, see page 7)

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -30°~250° F [-34°~121°C]

Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

VP20-MP Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended

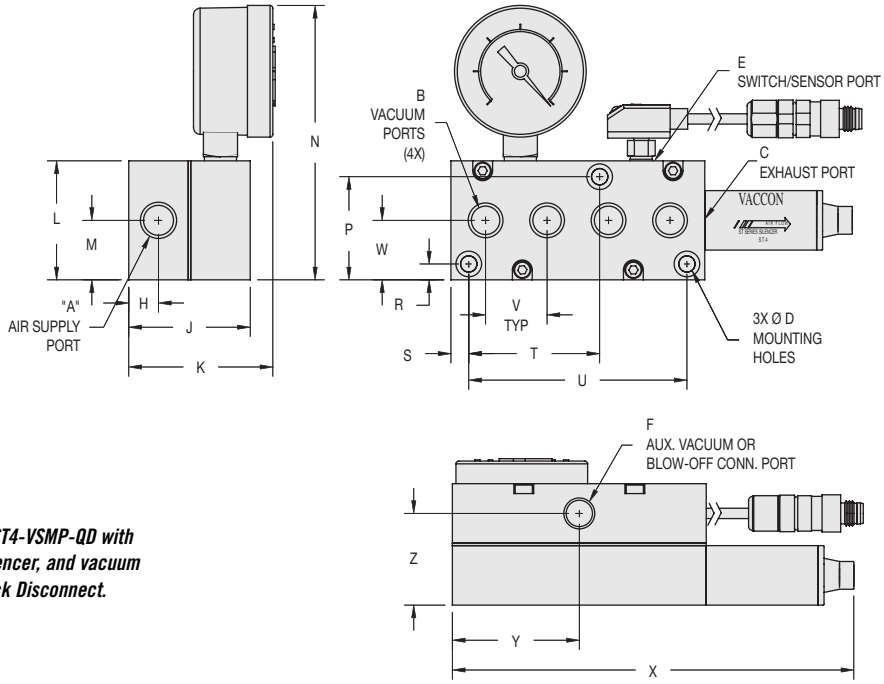
Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF125LPM. See page 282.

Control Valve: 3 way/2 position (faster part release), minimum orifice – 0.125" [3mm]

Mounting Holes: Mounting holes accept 10-32 or M5 screws

VP20-(60, 90, 100, 150) (L, M, H) -MP – Optional ST4 Silencer, Ultra-Mini Switch/Sensor and QD-Quick Disconnect

VP20-60M-MP-ST4-VSMP-QD with optional ST4 silencer, and vacuum switch with Quick Disconnect.



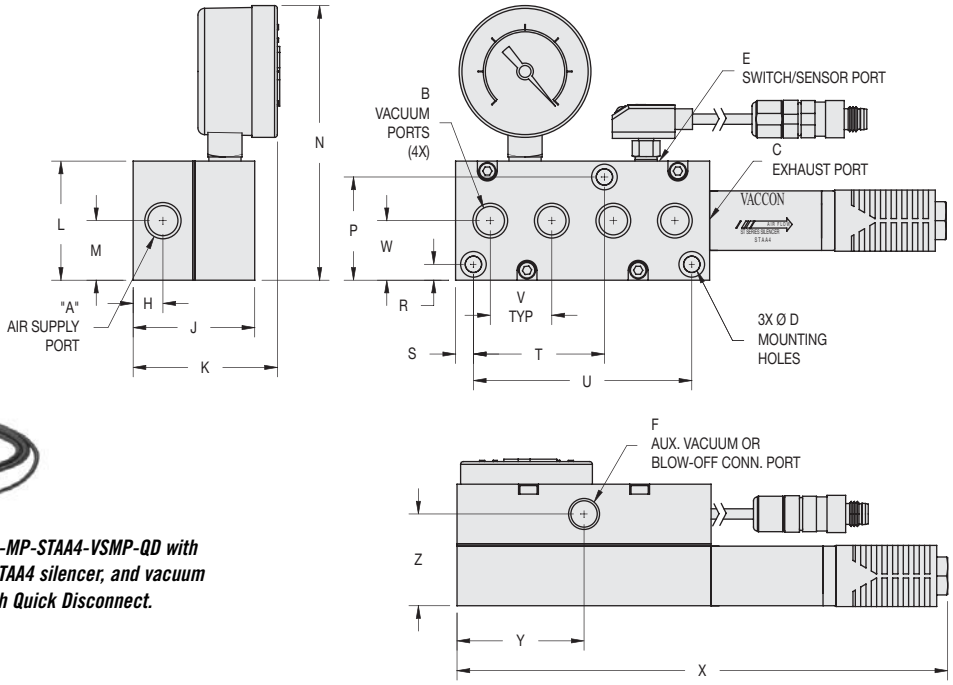
Specifications:

Weight 14 oz [397g]
Noise Level 66 dB

Model #	Imperial Dimensions (in.)																					
VP20-MP w/ST4, VSMP-QD	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	M5	1/4 NPT F	0.38	1.53	1.82	1.50	0.75	3.46	1.30	0.20	0.23	1.65	2.75	0.78	0.75	5.06	1.60	1.16
Model #	**Metric Dimensions (mm)**																					
I-VP20-MP w/ST4, VSMP-QD	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
	G 1/4	G 1/4	G 1/4	5.2	M5	G 1/4	9.5	38.9	46.1	38.1	19.1	87.9	33.0	5.1	5.7	41.9	69.9	19.7	19.1	128.5	40.6	29.4

VP20-(60, 90, 100, 150) (L, M, H) -MP – Optional STAA4 Silencer, Ultra-Mini Switch/Sensor and QD-Quick Disconnect

VP20-60M-MP-STAA4-VSMP-QD with optional STAA4 silencer, and vacuum switch with Quick Disconnect.



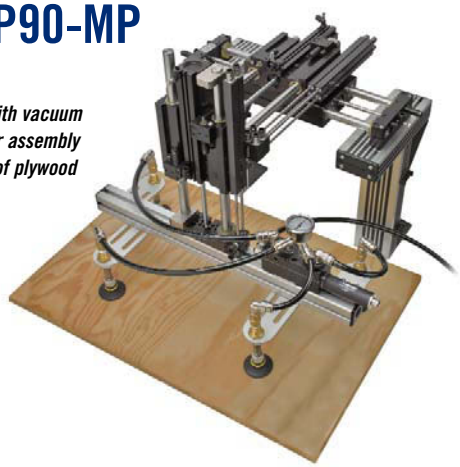
Specifications:

Weight	16 oz [454g]
Noise Level	58 dB

Model #	Imperial Dimensions (in.)																					
VP20-MP w/STAA4, VSMP-QD	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	M5	1/4 NPT F	0.38	1.53	1.82	1.50	0.75	3.46	1.30	0.20	0.23	1.65	2.75	0.78	0.75	6.18	1.60	1.16
Model #	**Metric Dimensions (mm)**																					
I-VP20-MP w/STAA4, VSMP-QD	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
	G 1/4	G 1/4	G 1/4	5.2	M5	G 1/4	9.5	38.9	46.1	38.1	19.1	87.9	33.0	5.1	5.7	41.9	69.9	19.7	19.1	157.0	40.6	29.4

Multi-port Venturi Vacuum Pumps with Silencers

Multi-port Pumps: Max Series VP80/VP90-MP



VP80-200M-MP with vacuum cup/spring leveler assembly transfers sheets of plywood

VP80-200H-MP

Vaccon's new Multi-port venturi vacuum pumps combine a venturi with a manifold to distribute vacuum to multiple locations. The result is a compact vacuum generation and distribution system for End-of-Arm Tools and applications where one pump powers multiple cups.

VP80-MP pumps have 4 vacuum ports that distribute vacuum equally to 4 locations while the VP90-MP pumps have 6 vacuum ports that distribute vacuum equally to 6 locations, both with "Home-Run" plumbing. The stream-lined design minimizes vacuum loss, maximizes vacuum flow and speeds cycle times for safe, efficient lifting operations.

In addition to the 4/6 topside vacuum ports, there is a port fitted with a 1.5" diameter glycerin filled vacuum gauge and another port that can be plumbed to a compressed air source to provide a blow-off. The manifold design allows one compressed air connection to feed blow-off air to all vacuum locations simultaneously, saving the need to plumb separate blow-off lines.

An M5 threaded port allows you to connect a Vaccon miniature vacuum sensor/switch to provide an electrical signal for vacuum achieved/part present and to alert failures.

Ideal Applications:

- Robotics/End-of-Arm Tooling
- Pick and place
- Flexible manufacturing
- Packaging – carton erecting, robotic palletizing
- Automation assembly

Features/Benefits

- High performance – vacuum up to 28"Hg [948mbar]
- High production – fast cycle times with shot to shot consistency
- High flow – maintains strong holding force, overcome leakage
- Home Run plumbing – saves compressed air
- Easy mounting – fractional and metric T-slot compatible
- Time saving – pre-designed, factory assembled, quick installation
- Safe operation – no electricity needed at pump
- Reliable – non-clogging, trouble free operation

Performance Level Designations:

"**L**" 0-10"Hg [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg [0 to 677mbar] for medium vacuum/high flow applications

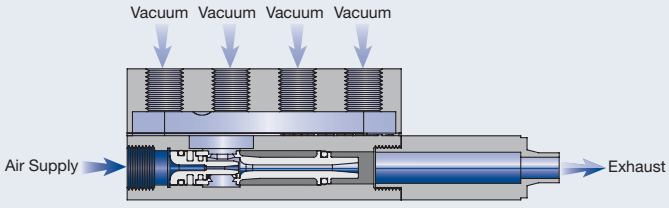
"**H**" 0-28"Hg [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Silencer options vary per model
- Miniature sensors or switches with optional quick disconnects
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard (60 PSI [4.0 BAR] option)

Principles of Operation:

Vacuum is produced instantly by supplying compressed air to a Max series venturi and is distributed to the vacuum manifold ports, gauge port, the switch/sensor port and the optional blow-off port if required.



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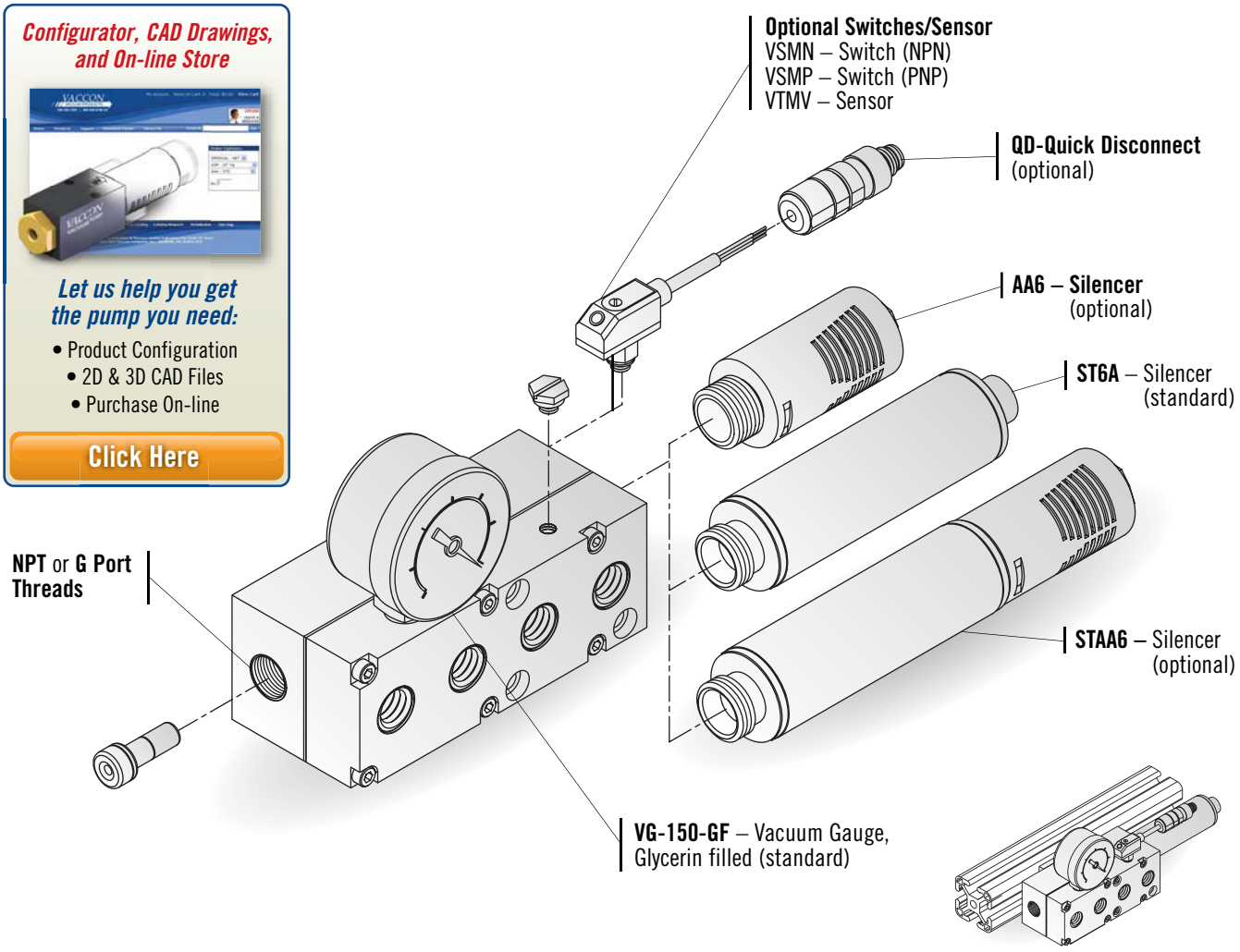
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

VP80-200 (L, M, H) -MP Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.



VP80-200 pumps are Fractional and Metric T-slot compatible. See EOAT Section.

How to Specify:

VP80-200 H - ___ - MP - ST6A - VSMP

P/N	Thread
VP80-200	NPT
I-VP80-200	G-Port

P/N	Max. Vac Level
L	10"Hg [339 mbar]
M	20"Hg [677 mbar]
H	28"Hg [948 mbar]

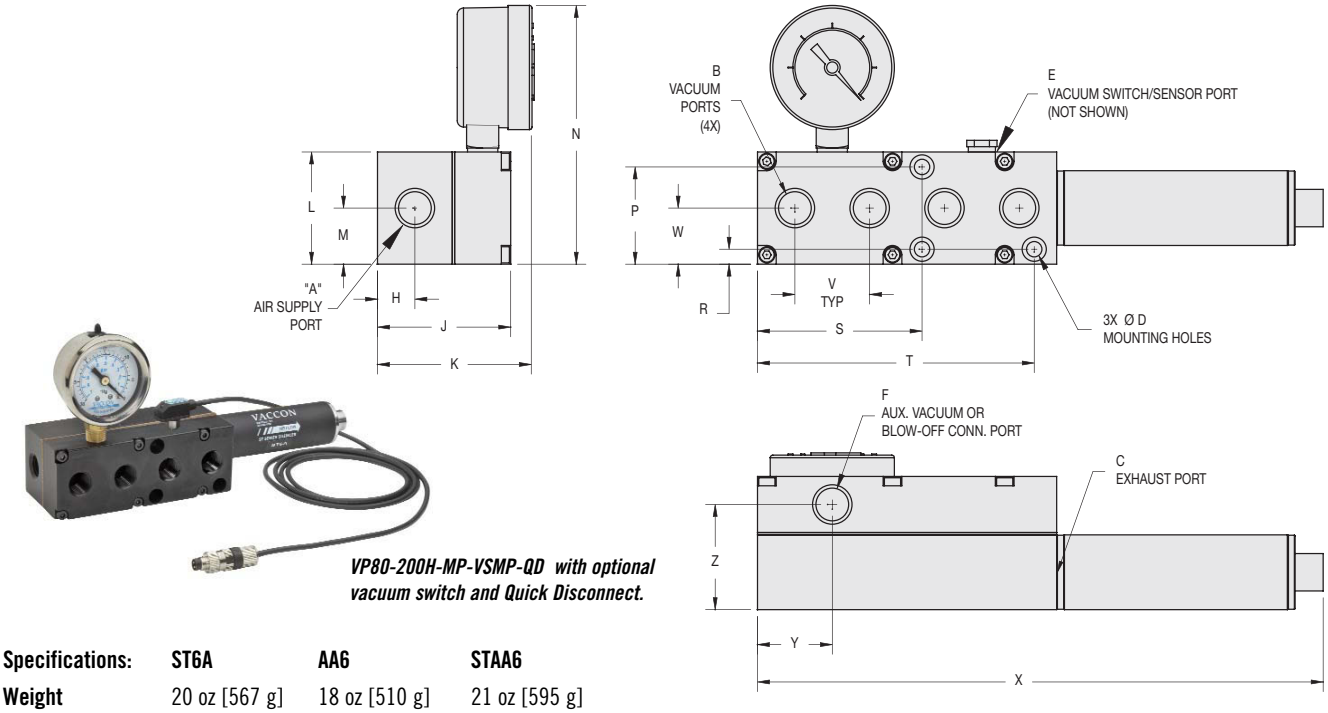
P/N	Operating Pressure
	80 PSI [5.5 Bar] (Std)
-60	60 PSI [4.1 Bar]

P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch – w/Quick Disconnect
VSMP-QD	Switch – w/Quick Disconnect
VTMV-QD	Sensor – w/Quick Disconnect

P/N	Silencer
	ST6A Straight-Through (Std)
AA6	Closed End
STAA6	Hybrid

For complete Performance Data, see page 153.

VP80-200 (L, M, H) -MP Pump – Optional AA6 or STAA6 Silencers with Ultra-Mini Switch/Sensor and QD-Quick Disconnect



VP80-200H-MP-VSMP-QD with optional vacuum switch and Quick Disconnect.

Specifications:	ST6A	AA6	STAA6
Weight	20 oz [567 g]	18 oz [510 g]	21 oz [595 g]
Noise Level	70 dB	72 dB	64 dB

Model #	Imperial Dimensions (in.)																					
VP80-200-MP	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
VSMP-STAA6	1/4 NPT F	1/4 NPT F	3/8 NPT F	0.21	M5	1/4 NPT F	0.50	1.78	2.06	1.50	0.75	3.46	1.30	0.20	2.20	3.70	N/A	1.00	0.75	7.56	1.00	1.41
AA6																				6.00		
STAA6																				9.00		

Model #	Metric Dimensions (mm)																					
I-VP80-200-MP	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
VSMP-STAA6	G 1/4	G 1/4	G 3/8	5.2	M5	G 1/4	12.7	45.2	52.2	38.1	19.1	87.9	33.0	5.1	55.9	94.0	N/A	25.4	19.1	192.0	25.4	35.7
AA6																				152.4		
STAA6																				228.6		

VP80-200-MP Pump Standard Specifications:

Pump & Cartridge Material: Anodized Aluminum (For silencer material, see pages 235-237)

Medium: Filtered (100 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -100°~ +400° F [-73°~ +204°C]

Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

VP80-200-MP Operating and Installation Instructions:

Supply Line: 3/8" O.D. [10mm] tube recommended

Vacuum Line: 3/8" O.D. [10mm] tube recommended

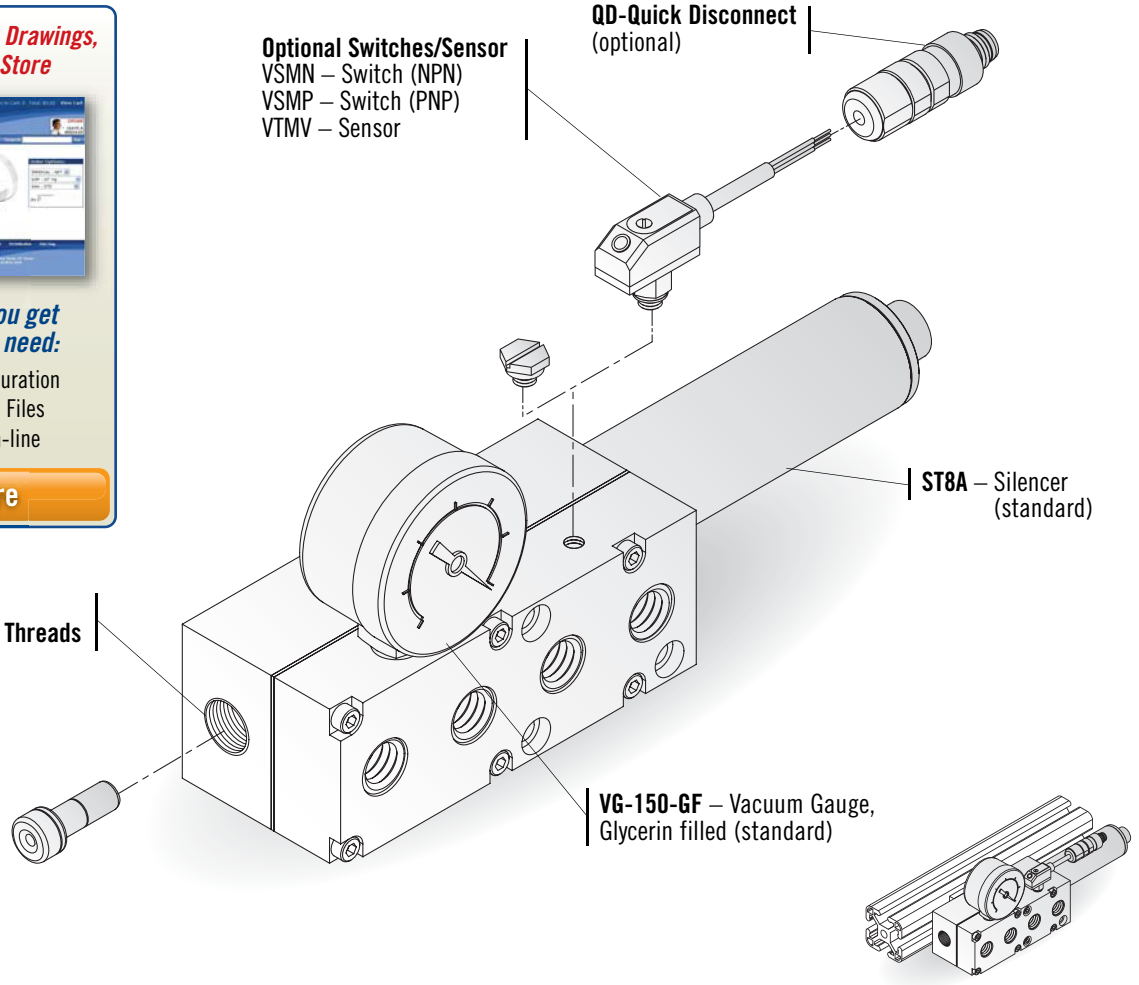
Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF375F. See page 282.

Control Valves: 3 way/2 position (faster part release) – minimum orifice 0.25" [6mm]

Mounting Holes: Mounting holes accept #10-32 or M5 screws

VP80-250 (L, M, H)-MP Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.



VP80-250 MP pumps are Fractional and Metric T-slot compatible. See EOAT Section.

How to Specify:

VP80-250 H - 60 - MP - VSMP

P/N	Thread
VP80-250	NPT
I-VP80-250	G-Port

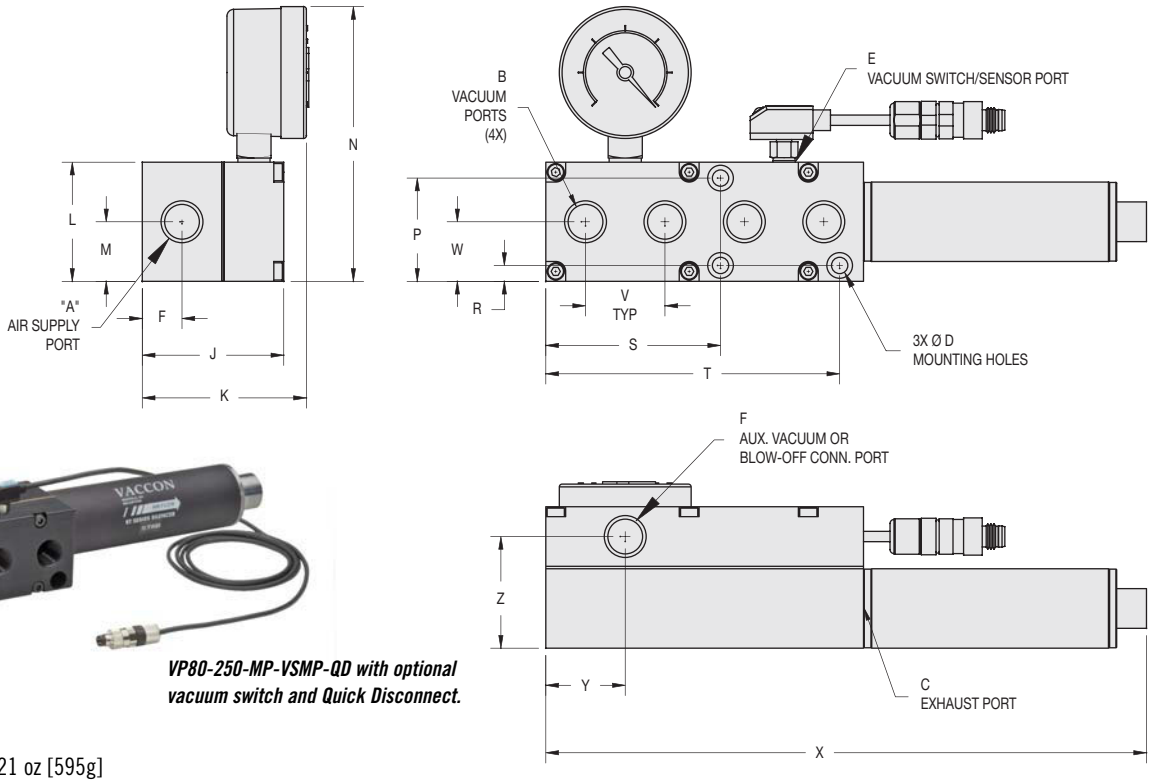
P/N	Max. Vac Level
L	10"Hg [339 mbar]
M	20"Hg [677 mbar]
H	28"Hg [948 mbar]

P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch – w/Quick Disconnect
VSMP-QD	Switch – w/Quick Disconnect
VTMV-QD	Sensor – w/Quick Disconnect

P/N	Operating Pressure
	80 PSI [5.5 Bar] (Standard)
60	60 PSI [4.0 Bar]

For complete Performance Data, see page 153.

VP80-250 (L, M, H)-MP Pump with Optional Ultra-Mini Switch/Sensor and QD-Quick Disconnect



VP80-250-MP-VSMP-QD with optional vacuum switch and Quick Disconnect.

Specifications:

Weight 21 oz [595g]
Noise Level 73 dB

Model #	Imperial Dimensions (in.)																					
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
VP80-250-MP VSMP-QD	3/8 NPT F	1/4 NPT F	1/2 NPT F	0.21	M5	1/4 NPT F	0.50	1.78	2.07	1.50	0.75	3.46	1.30	0.20	2.20	3.70	N/A	1.00	0.75	7.56	1.00	1.41
Model #	**Metric Dimensions (mm)**																					
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
I-VP80-250-MP VSMP-QD	G 3/8	G 1/4	G 1/2	5.2	M5	G 1/4	12.7	45.2	52.5	38.1	19.1	87.9	33.0	5.1	55.9	94.0	N/A	25.4	19.1	192.1	25.4	35.7

VP80-250-MP Pump Standard Specifications:

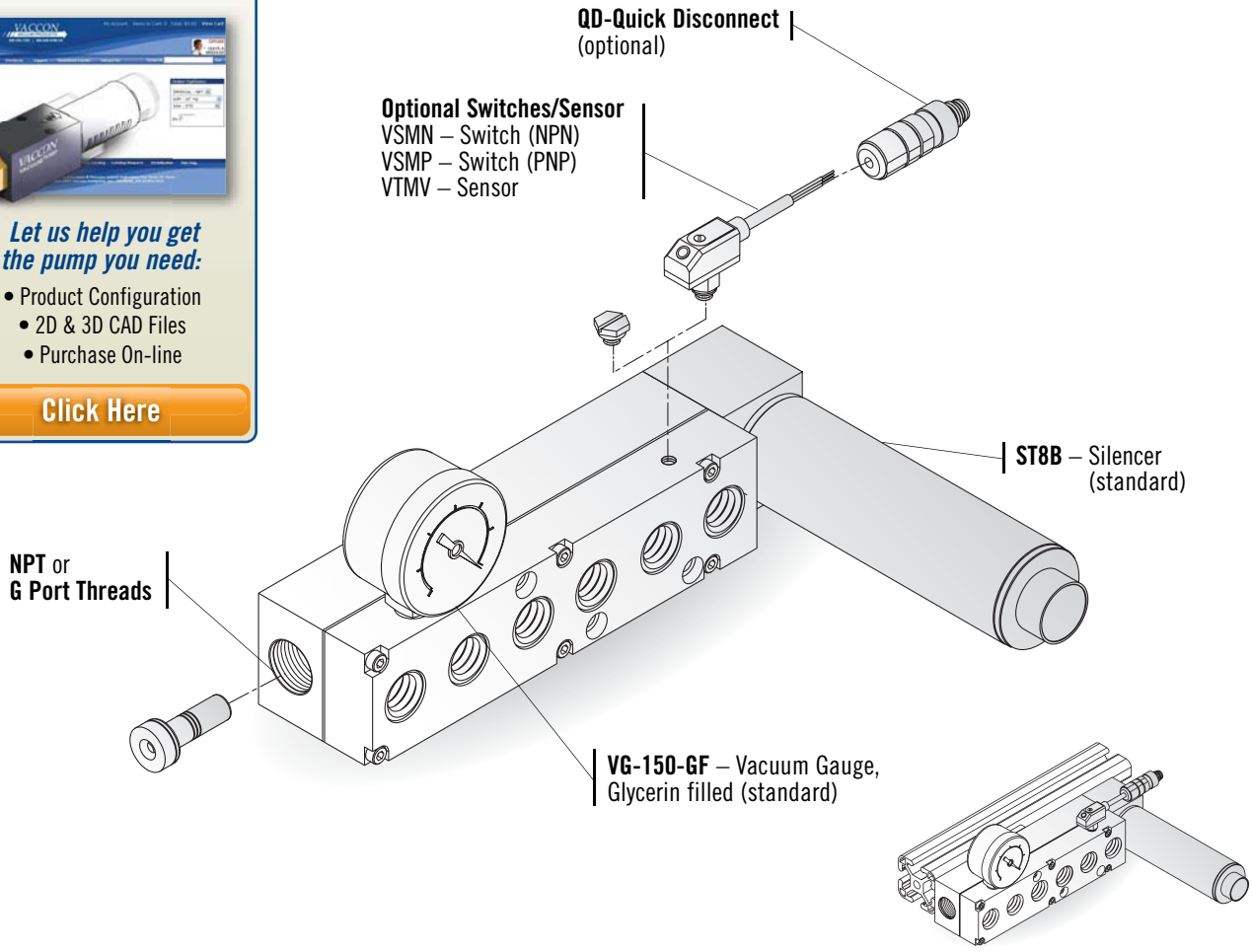
Pump & Cartridge Material: Anodized Aluminum (For silencer material, see page 236)
Medium: Filtered (100 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature: -100°~ +400° F [-73°~ +204°C]
Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

VP80-250-MP Operating and Installation Instructions:

Supply Line: 3/8" O.D. [10mm] tube recommended
Vacuum Line: 3/8" O.D. [10mm] tube recommended
Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF375F. See page 282.
Control Valves: 3 way/2 position (faster part release) – minimum orifice 0.25" [6mm]
Mounting Holes: Mounting holes accept #10-32 or M5 screws

VP90-300 & 350 (L, M, H)-MP Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.



VP90-300/350 MP pumps are Fractional and Metric T-slot compatible. See EOAT Section.

How to Specify:

VP90-300 M - 60 - MP - VSMP

P/N	Thread
VP90-300	NPT
I-VP90-300	G-Port
VP90-350	NPT
I-VP90-350	G-Port

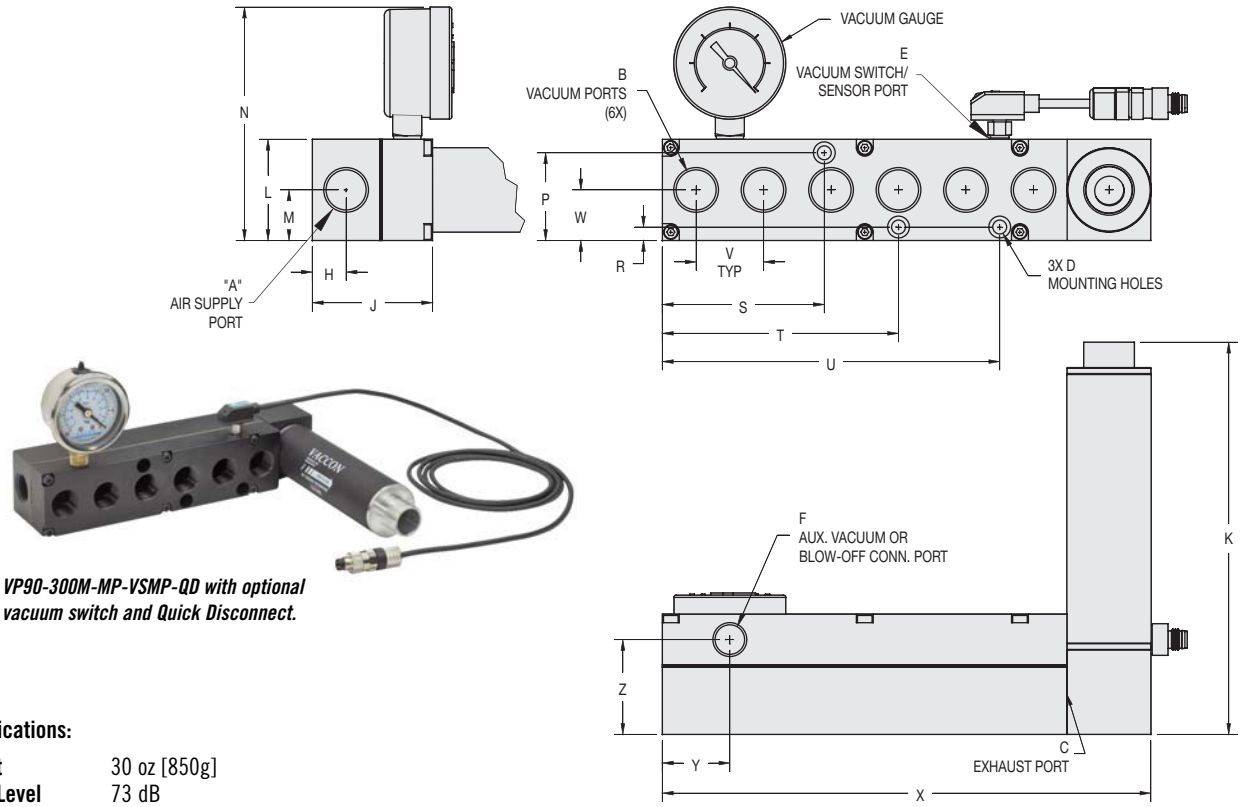
P/N	Max. Vac Level
L	10"Hg [339 mbar]
M	20"Hg [677 mbar]
H	28"Hg [948 mbar]

P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch – w/Quick Disconnect
VSMP-QD	Switch – w/Quick Disconnect
VTMV-QD	Sensor – w/Quick Disconnect

P/N	Operating Pressure
	80 PSI [5.5] Bar (Standard)
60	60 PSI [4.0] Bar

For complete Performance Data, see page 153.

VP90-300 & VP90-350 (L, M, H)-MP Pump with Optional Ultra-Mini Switch/Sensor and QD-Quick Disconnect



VP90-300M-MP-VSMP-QD with optional vacuum switch and Quick Disconnect.

Specifications:

Weight	30 oz [850g]
Noise Level	73 dB

Model #	Imperial Dimensions (in.)																					
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
VP90-300/ 350-MP VSMP-QD	3/8 NPT F	3/8 NPT F	1/2 NPT F	0.21	M5	1/4 NPT F	0.50	1.78	5.81	1.50	0.75	3.46	1.30	0.20	2.40	3.50	5.00	1.00	0.75	7.24	1.00	1.41
Model #	**Metric Dimensions (mm)**																					
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
I-VP90-300/ 350-MP VSMP-QD	G 3/8	G 3/8	G 1/2	5.2	M5	G 1/4	12.7	45.2	147.7	38.1	19.1	87.9	33.0	5.1	61.0	88.9	127.0	25.4	19.1	183.9	25.4	35.7

VP90-300/350-MP Pump Standard Specifications:

Pump & Cartridge Material: Anodized Aluminum (For silencer material, see page 236)

Medium: Filtered (100 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -100°~ +400° F [-73°~ +204°C]

Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

VP90-300/350-MP Operating and Installation Instructions:

Supply Line: 1/2" O.D. [12mm] tube recommended

Vacuum Line: 1/2" O.D. [12mm] tube recommended – 3/4" [22mm] for vacuum lines exceeding 3' (1M)

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF375F. See page 282.

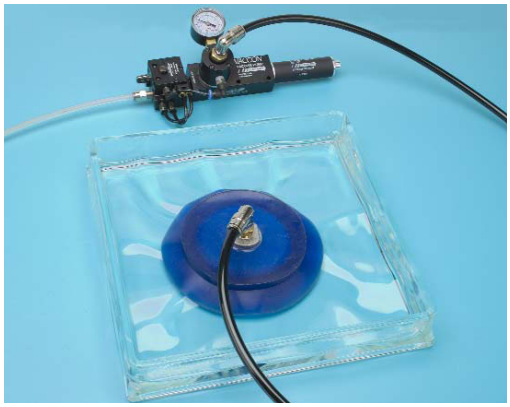
Control Valve: 3 way/2 position (faster part release), minimum orifice – 0.25" [6mm]

Mounting Holes: Mounting holes accept #10-32 or M5 screws

FastVac Pumps with Air Saver Technology

On-Demand Vacuum – Saves Air – Safe Operation

Mid and Max Series Venturi Pumps



Air Saver pumps safely handle non-porous products i.e. glass handling operations

VP80-200H-AS

Ideal Applications:

- Pick and place
- Press transfer lines – load and unload
- Vacuum clamping and chucking
- Vacuum bagging
- Vessel evacuation
- Vacuum forming

Features/Benefits:

- Powerful vacuum up to 28"Hg [948mbar] – rapid evacuation
- Energy efficient – compressed air on only when needed, automatic shut-off
- Intrinsically safe to operate – all pneumatic – no electricity required
- High vacuum flows provide dependable vacuum holding force
- Reliable – operates trouble free:
  - ~ No moving parts to wear or clog
  - ~ No maintenance
  - ~ No downtime
  - ~ Quiet

Standard Pump:

Vaccon's Air Saver Pumps are an all-pneumatic system that minimizes compressed air usage by creating, monitoring and maintaining vacuum for safe energy efficient operations.

For pick and place applications handling non-porous materials, the Air Saver pumps will maintain a strong holding force, conserve compressed air, and hold the part even if the compressed air supply is interrupted providing an extra level of safety when handling large loads.

For vessel evacuation applications such as wood and composite clamping, Air Saver pumps maintain vacuum for long periods of time and only consume compressed air to overcome system leaks resulting in 90% air savings.

The system includes a venturi vacuum pump, vacuum check valve, air piloted air valve and all-pneumatic vacuum switch. The switch is adjustable from 0 to 28"Hg [948mbar] and the hysteresis is 3"Hg [102mbar].

Performance Level Designations:

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Interchangeable venturi cartridges – 8 different performance levels – VP20-AS only
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] option

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Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

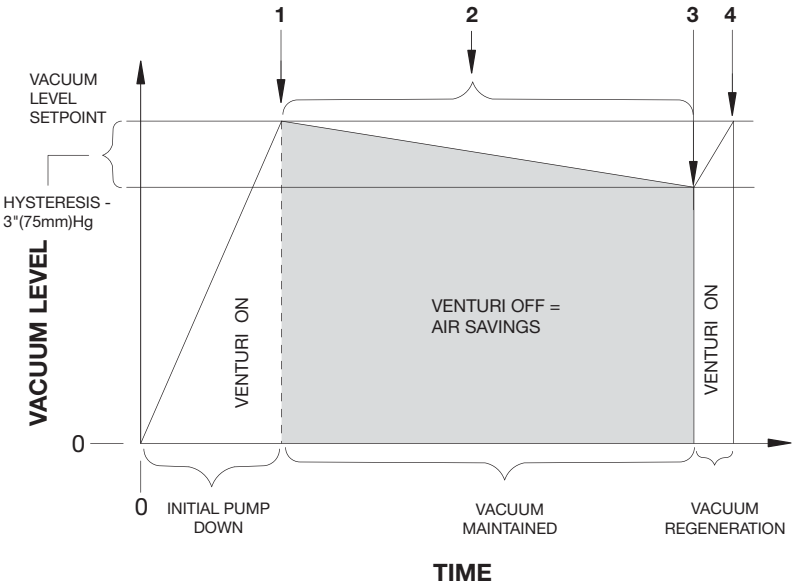
For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Principles of Operation: Air Saver Pumps

The pneumatic vacuum switch is the brain within the Air Saver system. It constantly monitors and controls the vacuum level as required based on customer specifications. Minimizing leaks in plumbing lines and connections extends the "venturi off" cycle and maximizes air savings. Below is a brief overview of the air saver cycle.

Determine the maximum vacuum level desired, then adjust the switch to the vacuum level setpoint.

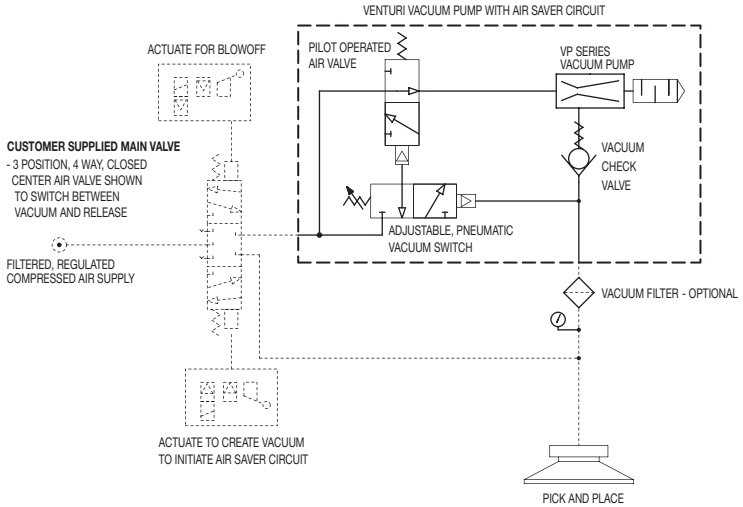
1. Once the vacuum level set-point is reached, the switch turns the pump off, stopping the flow of air to the venturi – air savings.
2. The integral check valve maintains the vacuum level.
3. Should there be a leak and the vacuum level decrease (Hysteresis 3"Hg [102mbar]), the pneumatic switch automatically re-energizes the venturi to bring the system back to the pre-set vacuum level set-point.
4. Then the switch de-energizes the venturi pump, (stopping the flow of air to the venturi – air savings) and the air saving cycle starts again.



Although compressed air savings will vary by application and system design, typically Vaccon Air Saver pumps will achieve a 90% energy cost savings.

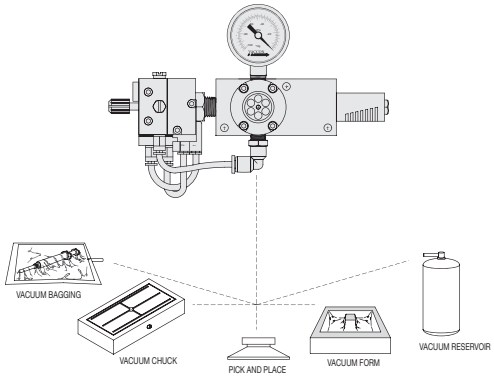
Vaccon Air Saver Circuit for Pick & Place/Part Release Applications

System Schematic with 3 Position Closed Center 4 Way Valve



Design Tip: For applications requiring a gentle part-release, cycle the blow-off valve for a short duration time. For applications requiring a rapid blow-off, cycle the valve for a longer duration.

Sizing an Air Saver Pump



To select a pump:

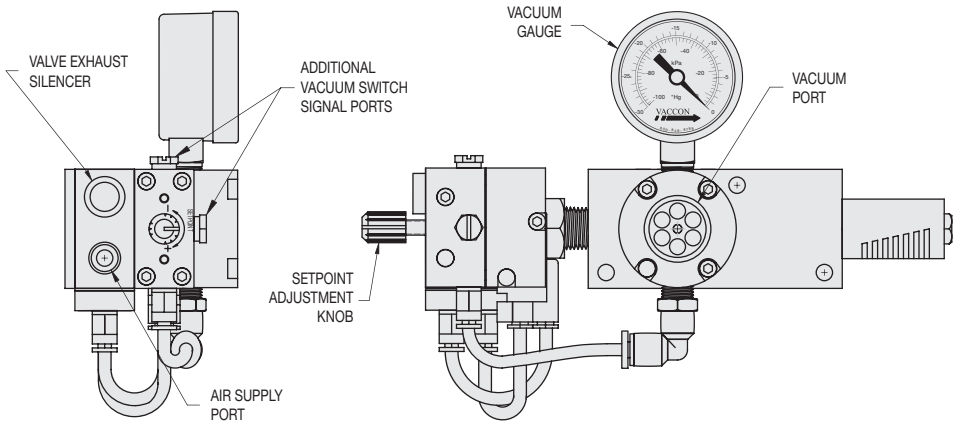
1. Determine the desired evacuation time (speed)
2. Calculate the total volume of air to be evacuated in the system including vacuum lines, vessel/cavity size, cups, etc.
3. Determine the desired vacuum level, "Hg/mbar

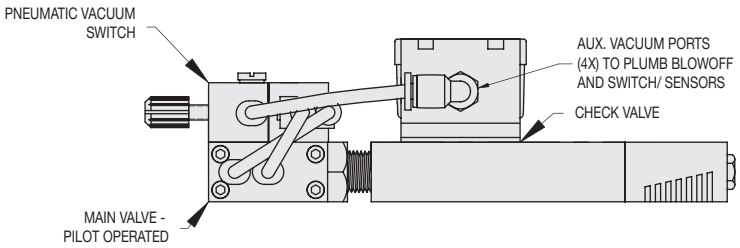
   Application ex.: Evacuate 2 cu.ft. of air in 1 minute (60 sec) at a vacuum level of 21"Hg

   Formula: Time (60 sec)/Cu. ft (2) = 30 seconds per cu.ft. (evacuation speed)

Consult pump Performance Data beginning on page 148. Under the evacuation time chart, look for 21" Hg and find the evacuation time that is closest to 30 seconds. In this example, a VP80-200H would be the best model with an evacuation time of 20 seconds.

Standard Air Saver Circuit Schematic: VP20-AS Pump Shown





All Air-Saver Pumps pumps are Fractional and Metric T-Slot compatible.

Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here

How to Specify:

VP20 - 100 - H - ___ - AS

P/N	Thread
VP20	NPT
I-VP20	G-Port
VP80	NPT
I-VP80	G-Port
VP90	NPT
I-VP90	G-Port

P/N	Max. Flow Level	
-60	(VP20 only)	
-90	(VP20 only)	
-100	(VP20 only)	
-150	(VP20 only)	
-200	(VP80 only)	
-250	(VP80 only)	
-300	(VP90 only)	
-350	(VP90 only)	80 PSI only

P/N	Operating Pressure
	80 PSI [5.5 Bar] (Standard)
-60	60 PSI [4.1 Bar]

P/N	Max. Vac Level
M	20"Hg [677mbar]
H	28"Hg [948mbar]

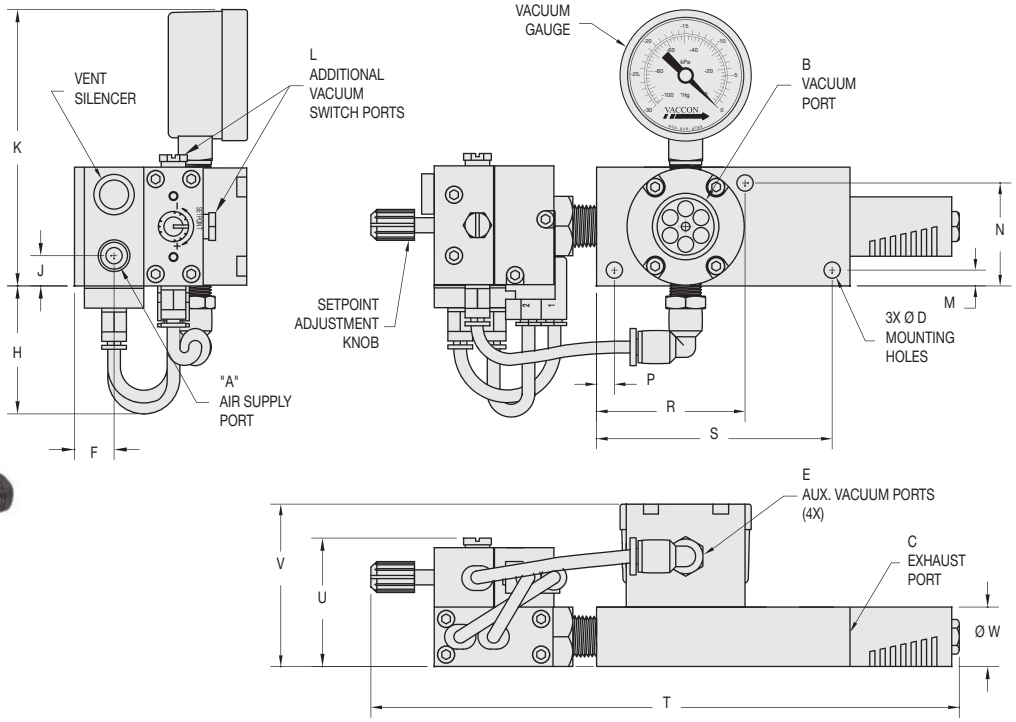
For complete Performance Data, see page 150.

Standard: VP20-(60, 90, 100, 150) (M, H) -AS Pump

Specifications:

Weight 15 oz [425 g]
Noise Level 64 dB

VP20-100H-AS



Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
VP20-AS	1/8 NPT F	1/2 NPT F	1/4 NPT F	0.21	1/8 NPT F	0.50	1.62	3.82	3.49	10-32 F	0.20	1.30	0.23	1.88	2.95	7.43	1.62	2.05	0.75
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
I-VP20-AS	G 1/8	G 1/2	G 1/4	5.2	G 1/8	12.7	41.1	97.0	88.6	M5	5.1	33.0	5.7	47.6	74.9	188.7	41.2	52.1	19.1

Air Saver Pump Standard Specifications:

Pump Body Material: Anodized Aluminum (For silencer material, see pages 233-236)
Cartridge Material: VP20- Nylon, Buna-N O-Ring, VP80's & 90's – Aluminum
Medium: Filtered (100 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature: -30°~250° F [-34°~121°C]
Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

Air Saver Operating and Installation Instructions:

Supply Line & Vacuum Line – VP20: 60 & 90 Cartridges = 1/4" O.D. [6mm] tube recommended
100 & 150 Cartridges= 3/8" O.D. [8mm] tube recommended

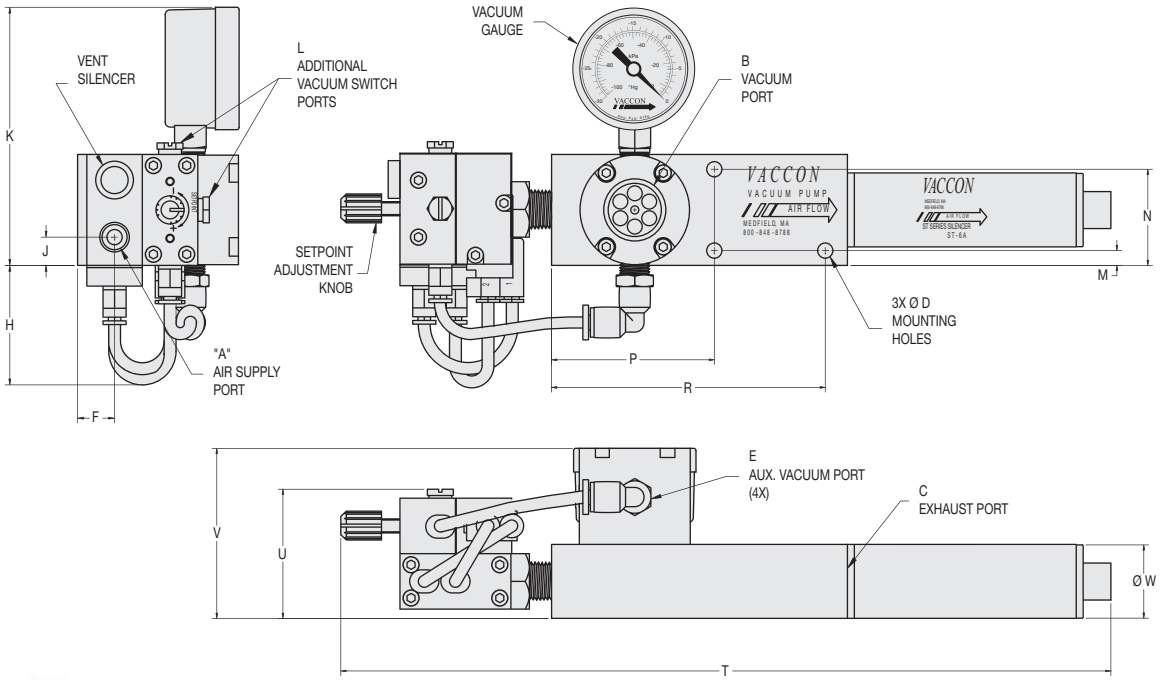
VP80: 80-200 = 3/8" O.D. [10mm] tube preferred
80-250 = 1/2" O.D. [12mm] tube preferred

VP90: 90-300 & 90-350 Cartridges – minimum = 1/2" O.D. [12mm] tube preferred

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends (see page 282):
VP20's = VF125LPM or VF250F
VP80's = VF375F
VP90's = VF500F

Mounting Holes: Mounting holes accept 10-32 [M5] screws

VP80-200 (M, H) -AS Pump



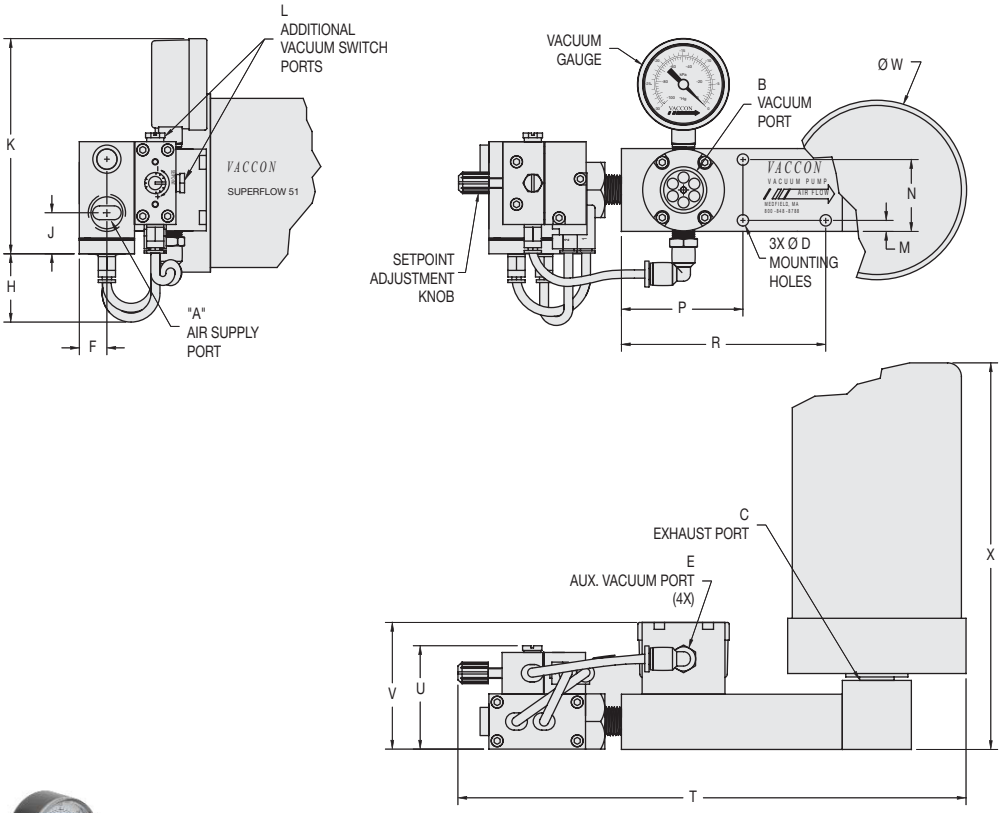
VP80-200M-AS

Specifications:

Weight 1 lb 5 oz [595g]
Noise Level 72 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
VP80-200-AS	1/8 NPT F	1/2 NPT F	3/8 NPT F	0.21	1/8 NPT F	0.50	1.62	3.82	3.49	10-32 F	0.20	1.30	2.20	3.70	N/A	10.41	1.75	2.30	1.00
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W
I-VP80-200-AS	G 1/8	G 1/2	G 3/8	5.2	G 1/8	12.7	41.1	97.0	88.6	M5	5.1	33.0	55.9	94.0	N/A	264.5	44.3	58.4	25.4

Standard VP80-250 (M, H) -AS Pump



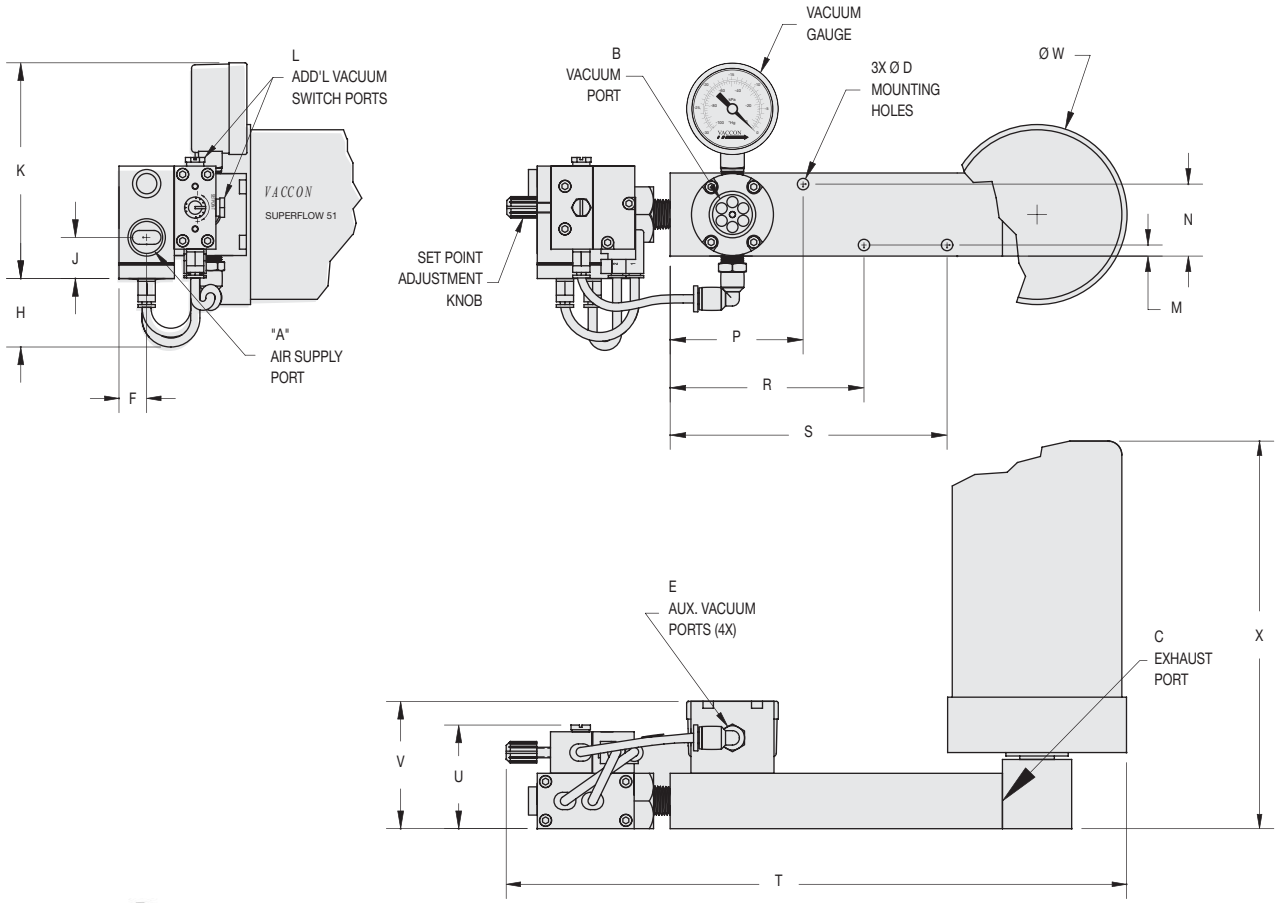
VP80-250H-AS

Specifications:

Weight 2 lb 4 oz [1021 g]
Noise Level 73 dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
VP80-250-AS	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.21	1/8 NPT F	0.50	1.26	0.74	3.90	10-32 F	0.20	1.30	2.20	3.70	N/A	9.20	1.87	2.30	3.23	7.00
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
I-VP80-250-AS	G 3/8	G 1/2	G 1/2	5.2	G 1/8	12.7	32.0	18.9	99.0	M5	5.1	33.0	55.9	94.0	N/A	233.7	47.5	58.4	82.0	177.8

Standard: VP90-300 or 350 (M, H) -AS Pump



VP90-350H-AS

Specifications:

Weight 2 lb 9 oz [1162 g]
Noise Level 73 dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
VP90-300/350-AS	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.21	1/8 NPT F	0.50	1.24	0.74	3.90	10-32 F	0.20	1.30	2.40	3.50	5.00	11.20	1.87	2.30	3.23	7.00
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X
I-VP90-300/350-AS	G 3/8	G 1/2	G 1/2	5.2	G 1/8	12.7	31.4	18.9	99.0	M5	5.1	33.0	61.0	88.9	127.0	284.5	47.5	58.4	82.0	177.8

Miniature Venturi Vacuum Pump with Pneumatic Blow-off and Silencer

Fastbreak Mini Series: VP0X & VP0X-ADJ

VP0X-60H Fastbreak blow-off pump with vacuum cup, spring leveler assembly for rapid part release

VP0X-60H

Ideal Applications:

Small part pick and place for applications requiring accurate part placement and rapid part release:

- ~ Integrated circuits
- ~ Packaging machines
- ~ High speed labeling machines
- ~ Sheet feeders
- ~ Robotic end effectors
- ~ Automated assembly

Features/Benefits:

- **Fast Response – compact, lighweight, and installs close to vacuum point**
- **Trouble free operation:**
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ Automatically cleans vacuum lines
  - ~ No downtime
- **High productivity – rapid part release, cycle rates up to 900/min**
- **Modular design – add vacuum sensors and solenoid valves to create a complete vacuum system**
- **Multiple functions from just one PLC output – requires fewer outputs, less costly, easy to program**
- **Reliable part detection – factory installed miniature vacuum switches or sensors**

Standard Pump:

VP0X & VP0X-ADJ air-powered venturi vacuum pumps are trusted for accurate part placement and rapid part release. The reliable Fastbreak Mini Series provides both vacuum and blow-off in one pump, using only one compressed air line. No electricity required.

The integrated pneumatic high-speed blow off on the VP0X pump provides a fixed-duration blow off, based on the volume of the housing. With the VP0X-ADJ adjustable vacuum pump, you can control the intensity of the blow-off using one fingertip adjustment knob. (Customer-supplied directional control valve with exhaust required.)

For applications where you need to control the duration of the blow-off, please see VP01QR Series on page 129.

For applications where you need a solenoid operated pump with a pneumatic blow-off, please see VP2XV on page 105.

Performance Level Designations:

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum /high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- ADJ version allows the user to set the intensity of the blow-off from no blow-off to full blow-off
- Factory-installed miniature vacuum switches or sensors for reliable part detection
- ST2 (straight-through) silencer that allows ingested debris to exit the pump without clogging
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5BAR] standard, 60 PSI [4.0 BAR] optional

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Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

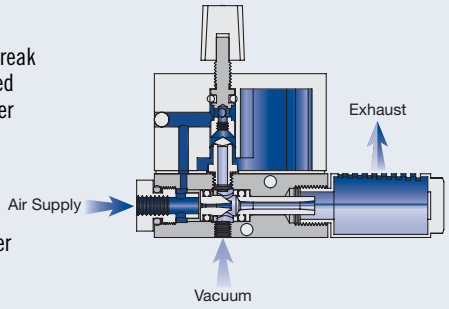
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

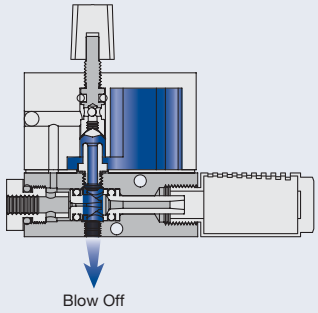
Principles of Operation: VPOX, VPOX-ADJ

Fastbreak pumps provide both suction and blow-off with a single supply of compressed air controlled by a solenoid valve.

Utilizing quick exhaust valve technology, Fastbreak pumps store compressed air in the upper chamber while simultaneously generating vacuum. The quick exhaust diaphragm seals the compressed air chamber from the suction line.



To release the part, the solenoid valve* is de-energized. The vacuum stops and the rapid drop in pressure shifts the quick exhaust diaphragm into the up position allowing the store compressed air to vent into the vacuum line.



When handling small and lightweight parts, choose the adjustable version (-ADJ) shown above to control the blow-off intensity.

***Note:** The (customer supplied) solenoid valve controlling the compressed air to the Fastbreak pump must vent to atmosphere for the quick exhaust valve to actuate properly.

VPOX and VPOX-ADJ Standard Pump Specifications:

Body Material:	Anodized Aluminum, Nebar, Brass, Buna-N, Vinyl, Nylon, Alloy Steel (For silencer material, see pages 233-236)
Cartridge Material:	Nylon, Buna-N O-ring, (Other materials available, see page 7)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	+32°~125° F [0°~52°C]
Operating Pressure:	80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures
Cycle Rates:	Up to 900/min
Blow-off Response Time:	Instantaneous
Orientation:	Any position
Blow-off Duration:	100 milliseconds (based on system design)

VPOX and VPOX-ADJ Operating and Installation Instructions:

Cartidge Size:	**CM60 (M or H)**
Supply Line:	Min. 5/32 [4mm], Preferred 1/4" O.D. [6mm] tube for supply lines exceeding 3' (1M)
Control Valve:	3-way/2 position – minimum orifice - 0.093" [2.5mm]
Vacuum Line:	Preferred 1/4" [6mm] for short runs 5/32" [4mm] may be used
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF125LPM. See page 282.
Mounting Holes:	Mounting holes accept 4-40 [M3] screws

VP0X & VP0X-ADJ: Fastbreak Mini Series Configurations and Options:

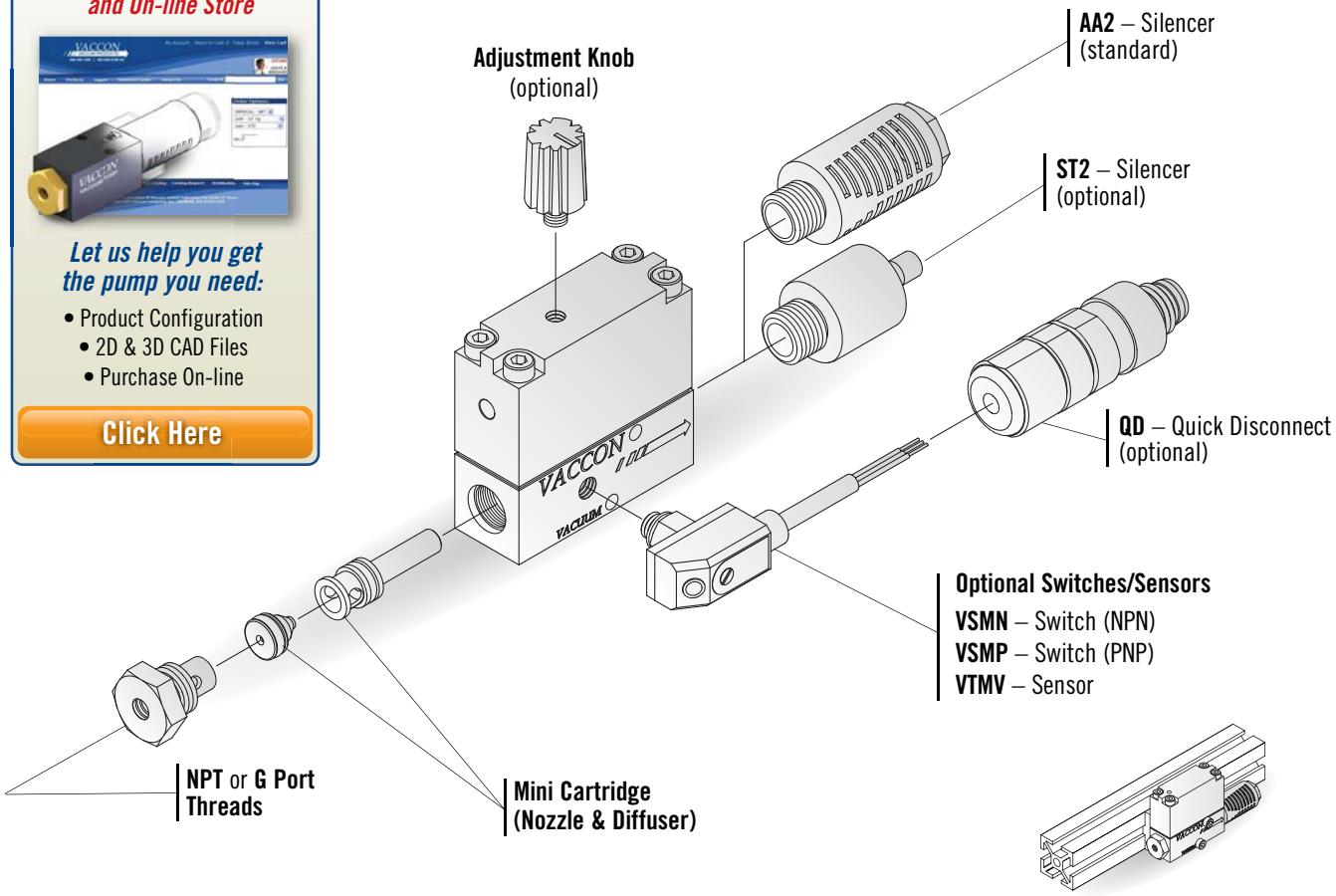
All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here



VP0X pumps are Fractional and Metric T-Slot compatible. See EOAT Section.

How to Specify:

VP0X - 60 H - ___ - ADJ - ST2 - ___

P/N	Thread
VP0X	NPT
I-VP0X	G Port

P/N	Max. Flow Level
-60	Standard

P/N	Max. Vac Level
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Operating Pressure
	80 PSI (Standard)
-60	60 PSI

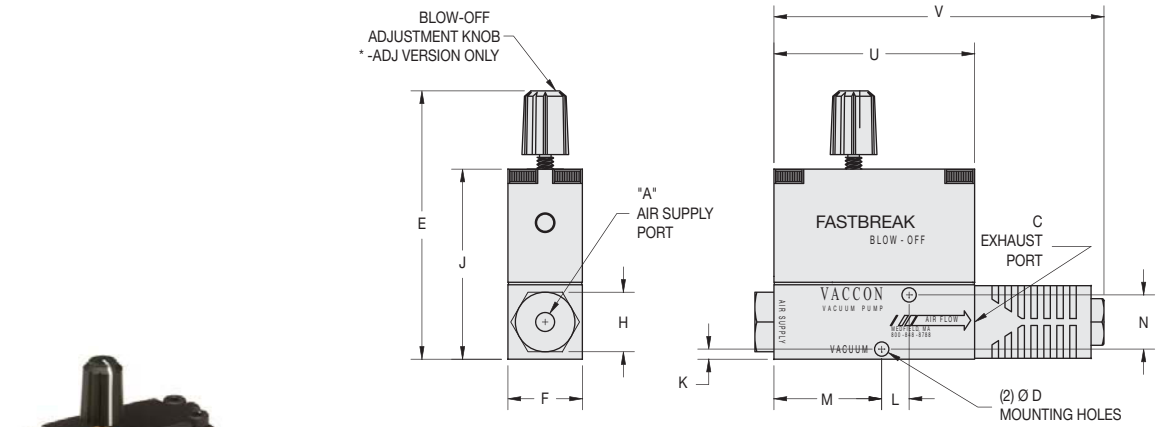
P/N	Switch/Sensor
	None - Standard
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor– 0-5VDC Output
VSMN-QD	Switch w/Quick Disconnect
VSMP-QD	Switch w/Quick Disconnect
VTMV-QD	Sensor w/Quick Disconnect

P/N	Silencer
	AA2 Closed End (Standard)
-ST2	Straight-Through

P/N	Adjustable Blow-Off
	Not Adjustable (Standard)
ADJ	Adjustable Blow-off

For complete Performance Data, see page 148.

Standard: VPOX-60 (M, H) - (ADJ) Pump



VPOX-60M-ADJ

VPOX-60H

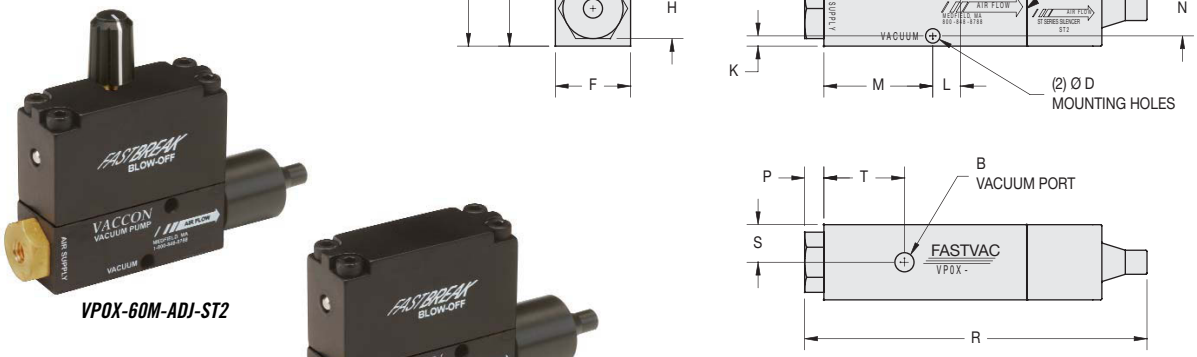
Specifications:

Weight 2.6 oz [74g]
Noise Level 68 dB

Model #	Imperial Dimensions (in.)																	
	A	B	C	D	E*	F	H	J	K	L	M	N	P	R	S	T	U	V
VPOX (ADJ) w/AA4	10-32	10-32	1/8 NPT F	0.12	2.25	0.63	0.50	1.60	0.09	0.23	0.91	0.46	0.16	2.93	0.31	0.67	1.69	2.77
Model #	**Metric Dimensions (mm)**																	
	A	B	C	D	E*	F	H	J	K	L	M	N	P	R	S	T	U	V
I-VPOX (ADJ) w/AA4	M5	M5	G 1/8	3.0	57.2	15.9	12.7	40.5	2.2	5.8	23.0	11.6	4.1	74.5	7.9	17.0	42.8	70.4

*-ADJ Version Only

VPOX-60 (M, H) - (ADJ) Pump - Optional Silencer: ST2



VPOX-60M-ADJ-ST2

VPOX-60M-ST2

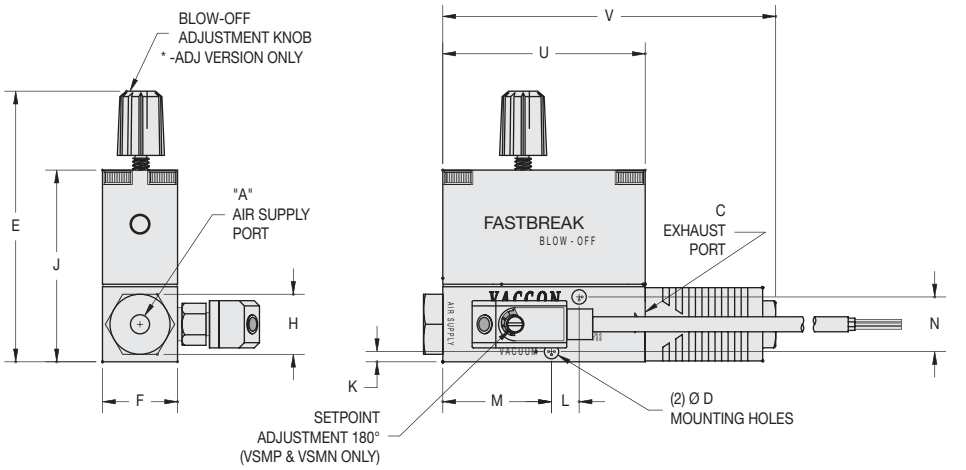
Specifications:

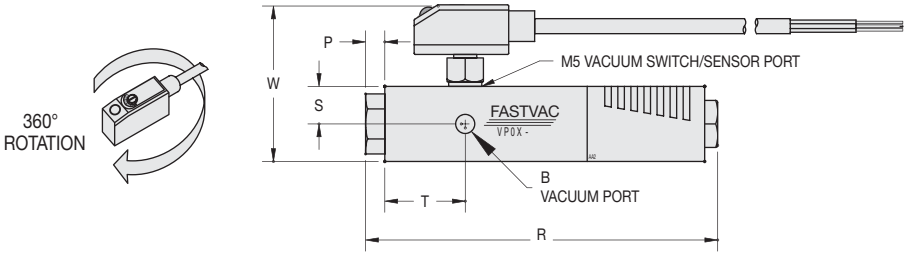
Weight 2.7 oz [76g]
Noise Level 68 dB

Model #	Imperial Dimensions (in.)																	
	A	B	C	D	E*	F	H	J	K	L	M	N	P	R	S	T	U	V
VPOX-(ADJ) - ST2	10-32	10-32	1/8 NPT F	0.12	2.25	0.63	0.50	1.60	0.09	0.23	0.91	0.46	0.16	2.85	0.31	0.67	1.69	2.69
Model #	**Metric Dimensions (mm)**																	
	A	B	C	D	E*	F	H	J	K	L	M	N	P	R	S	T	U	V
I-VPOX-(ADJ)-ST2	M5	M5	G 1/8	3.0	57.2	15.9	12.7	40.5	2.2	5.8	23.0	11.6	4.1	72.3	7.9	17.0	42.8	68.2

*-ADJ Version Only

VP0X-60 (M, H) - (ADJ) Pump – Optional Switch/Sensor: VSMP, VSMN or VTMV





VP0X-60H-ADJ-VSMP

VP0X-60H-VSMP

Specifications:

Weight 3.5 oz [99g]
Noise Level 68 dB

Model #	Imperial Dimensions (in.)																		
VP0X (ADJ)-VSMP	A	B	C	D	E*	F	H	J	K	L	M	N	P	R	S	T	U	V	W
	10-32	10-32	1/8 NPT F	0.12	2.25	0.63	0.50	1.60	0.09	0.23	0.91	0.46	0.16	2.93	0.31	0.67	1.69	2.77	1.31
Model #	**Metric Dimensions (mm)**																		
I-VP0X (ADJ)-VSMP	A	B	C	D	E*	F	H	J	K	L	M	N	P	R	S	T	U	V	W
	M5	M5	G 1/8	3.0	57.2	15.9	12.7	40.5	2.2	5.8	23.0	11.6	4.1	74.5	7.9	17.0	42.8	70.4	33.2

*-ADJ Version Only

Mid Series Venturi Vacuum Pump with Pneumatic Blow-off and Silencer

Fastbreak Mid Series: VP1X & VP1X-ADJ

VP1X-150H

VP1X-150H-ADJ

Ideal Applications:

- Pick and place applications requiring accurate part placement and rapid part release:
  - ~ Palletizing
  - ~ Packaging machines
  - ~ High speed labeling machines
  - ~ Sheet feeders
  - ~ Robotic end effectors
  - ~ Automated assembly

Features/Benefits:

- Fast Response – compact, lighweight, and installs close to vacuum point
- Trouble free operation:
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ Automatically cleans vacuum lines
  - ~ No downtime
- High productivity – rapid part release, cycle rates up to 900/min
- Modular design – add vacuum sensors and solenoid valves to create a complete vacuum system
- Multiple functions from just one PLC output – requires fewer outputs, less costly, easy to program
- Reliable part detection – factory installed miniature vacuum switches or sensors

Standard Pump:

VP1X & VP1X-ADJ air-powered venturi vacuum pumps are trusted for accurate part placement and rapid part release. The reliable Fastbreak Mid Series provides both vacuum and blow-off in one pump, using only one compressed air line. No electricity required.

The integrated pneumatic high-speed blow off on the VP1X pump provides a fixed-duration blow off, based on the volume of the housing. With the VP1X-ADJ adjustable vacuum pump, you can control the intensity of the blow-off using one fingertip adjustment knob. (Customer-supplied directional control valve with exhaust required.)

For applications where you need to control the duration of the blow-off, please see VP30QR Series on page 135.

For applications where you need a solenoid operated pump with a pneumatic blow-off, please see VP2XV on page 105.

Performance Level Designations:

"**L**" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- ADJ version allows the user to set the intensity of the blow-off from no blow-off to full blow-off
- Interchangeable venturi cartridges – 11 different performance levels
- Factory-installed miniature vacuum switches or sensors for reliable part detection
- Silencers – ST4 (straight-through) silencer won't clog, or STAA4 silencers for ultra quiet operation
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5BAR] standard, 60 PSI [4.0 BAR] optional

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Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

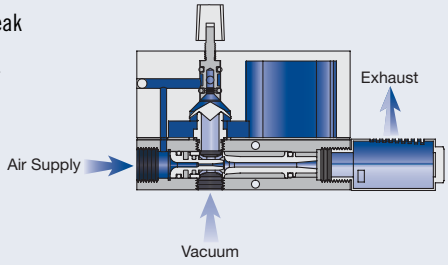
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

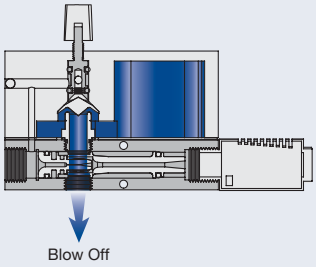
Principles of Operation: VP1X & VP1X-ADJ

Fastbreak pumps provide both suction and blow-off with a single supply of compressed air controlled by a solenoid valve.

Utilizing quick exhaust valve technology, Fastbreak pumps store compressed air in the upper chamber while simultaneously generating vacuum. The quick exhaust diaphragm seals the compressed air chamber from the suction line.



When the part is to be released, the solenoid valve* is de-energized. The vacuum stops and the rapid drop in pressure shifts the quick exhaust diaphragm into the up position allowing the store compressed air to vent into the vacuum line.



When handling small and lightweight parts, choose the adjustable version (-ADJ) shown above to control the blow-off intensity.

*__Note:__ The (customer supplied) solenoid valve controlling the compressed air to the Fastbreak pump must vent to atmosphere for the quick exhaust valve to actuate properly.

VP1X and VP1X-ADJ Standard Pump Specifications:

Body Material:	Anodized Aluminum, Nebar, Brass, Buna-N, Vinyl, Nylon, Alloy Steel (For silencer material, see pagex 233-237)
Cartridge Material:	Nylon, Buna-N O-ring (Other materials available, see page 7)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	+32°~125° F [0°~52°C]
Operating Pressure:	80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures
Cycle Rates:	Up to 900/min
Blow-off Response Time:	Instantaneous
Orientation:	Any position
Blow-off Duration:	100 milliseconds (based on system design)

VP1X and VP1X-ADJ Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF-125LPM – See page 282	Typically filters are not required, if desired Vaccon recommends – VF-250F – See page 282
Control Valve:	3 way/2 position, minimum orifice - 0.125" ID [3mm]	
Mounting Holes:	Mounting holes accept 4-40 [M3] screws	

VP1X & VP1X-ADJ Fastbreak Mid Series Configurations and Options:

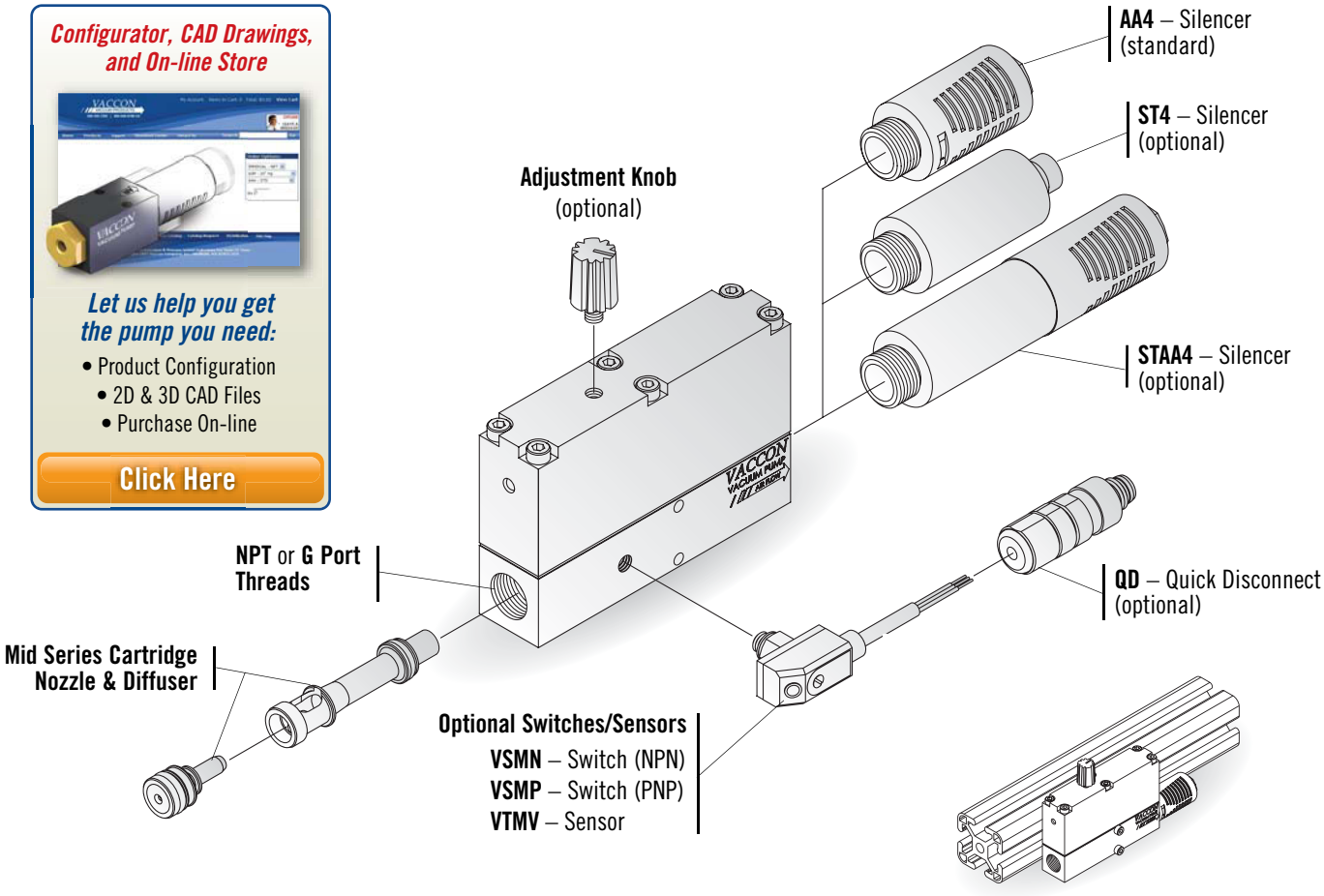
All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here



VP1X pumps are Fractional and Metric T-slot compatible. See EOAT Section.

How to Specify:

VP1X - 60 H - ___ - ADJ - ST4 - ____

P/N	Thread
VP1X	NPT
I-VP1X	G Port

P/N	Max. Flow Level
-60	
-90	
-100	
-150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Std)
-60	60 PSI [4.0 BAR]

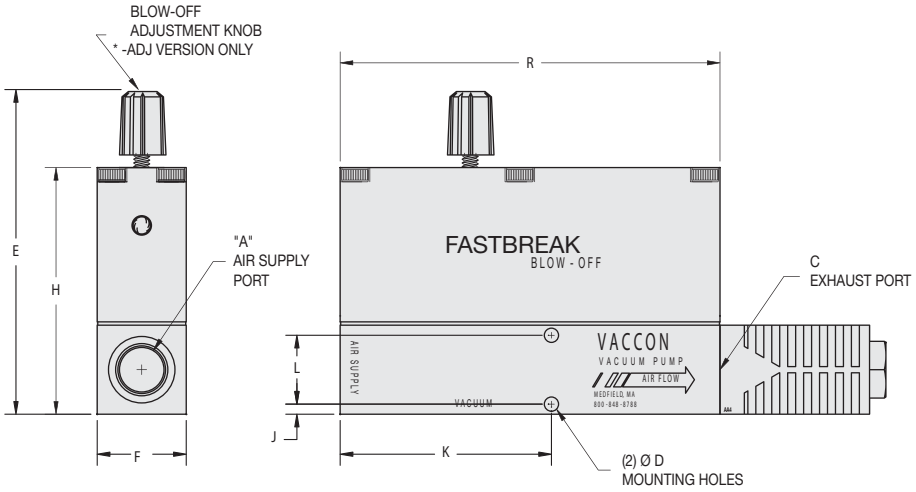
P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch w/Quick Disconnect
VSMP-QD	Switch w/Quick Disconnect
VTMV-QD	Sensor w/Quick Disconnect

P/N	Silencer
	AA4 Closed End (Standard)
ST4	Straight-through
STAA4	Hybrid

P/N	Adjustable Blow-off
	Not Adjustable (Standard)
ADJ	Adjustable Blow-off

For complete Performance Data, see page 150.

Standard: VP1X - (60, 90, 100, 150) (L, M or H) (-ADJ) Pump



VP1X-90H-ADJ with AA4

VP1X-60M with AA4

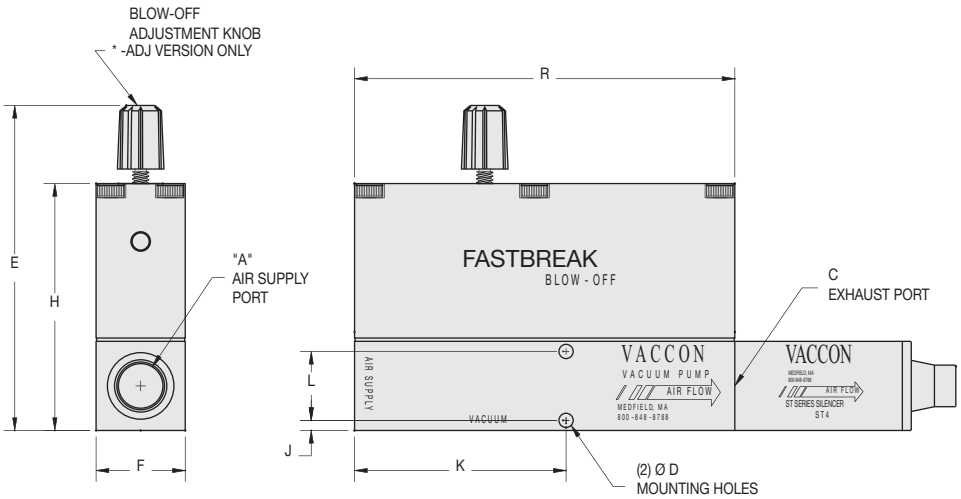
Specifications:

Weight 5.7 oz [162g]
Noise Level 64 dB

Model #	Imperial Dimensions (in.)													
VP1X (ADJ) w/AA4	A	B	C	D	E*	F	H	J	K	L	M	N	P	R
	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.12	2.74	0.75	2.08	0.09	1.78	0.58	4.60	0.38	1.10	3.20
Model #	**Metric Dimensions s (mm)**													
I-VP1X (ADJ) w/AA4	A	B	C	D	E*	F	H	J	K	L	M	N	P	R
	G 1/4	G 1/8	G 1/4	3.0	69.5	19.1	52.8	2.2	45.2	14.7	116.8	9.5	27.9	81.3

*-ADJ Version Only

VP1X - (60, 90, 100, 150) (L, M or H) (-ADJ) Pump - Optional Silencer: ST4



VP1X-100H-ADJ with ST4 Silencer

VP1X-150M with ST4 Silencer

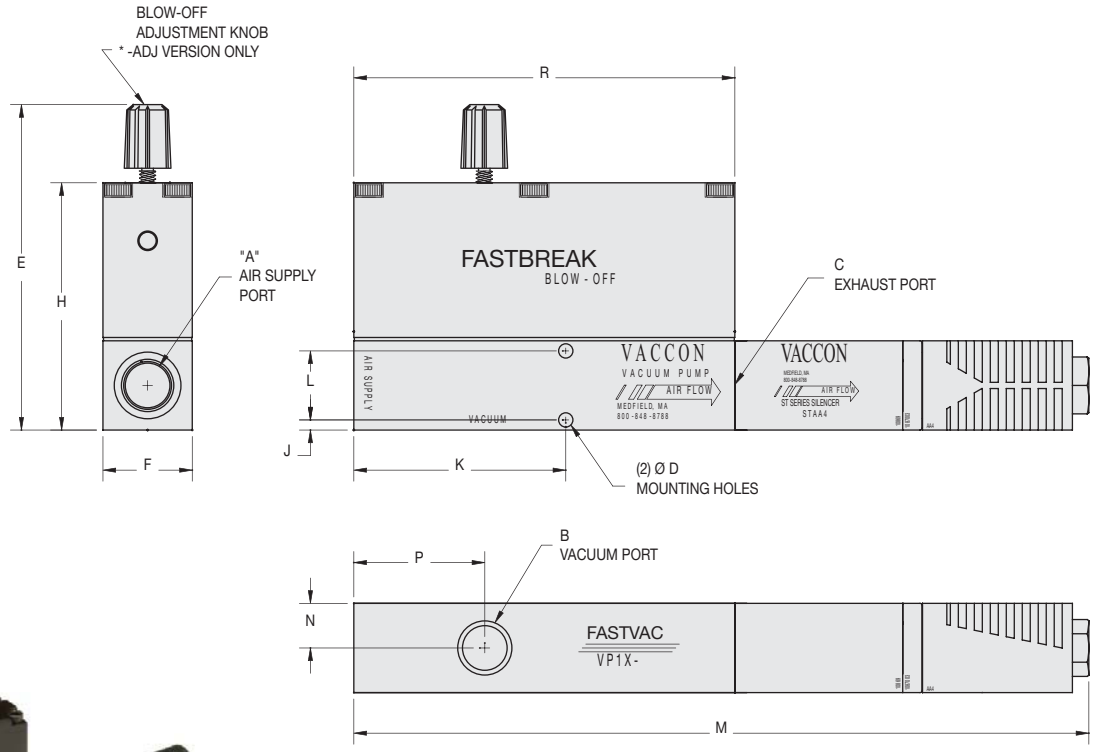
Specifications:

Weight 5.8 oz [165g]
Noise Level 66 dB

Model #	Imperial Dimensions (in.)													
VP1X (ADJ) w/ST4	A	B	C	D	E*	F	H	J	K	L	M	N	P	R
	1/4 NPT F	1/8 NPT F	1/4 NPT F	0.12	2.74	0.75	2.08	0.09	1.78	0.58	5.06	0.38	1.10	3.20
Model #	**Metric Dimensions (mm)**													
I-VP1X (ADJ) w/ST4	A	B	C	D	E*	F	H	J	K	L	M	N	P	R
	G 1/4	G 1/8	G 1/4	3.0	69.5	19.1	52.8	2.2	45.2	14.7	128.5	9.5	27.9	81.3

*-ADJ Version Only

VP1X - (60, 90, 100, 150) (L, M or H) (-ADJ) Pump - Optional Silencer: STAA4



VP1X-60M-ADJ with STAA4 Silencer

VP1X-90M with STAA4 Silencer

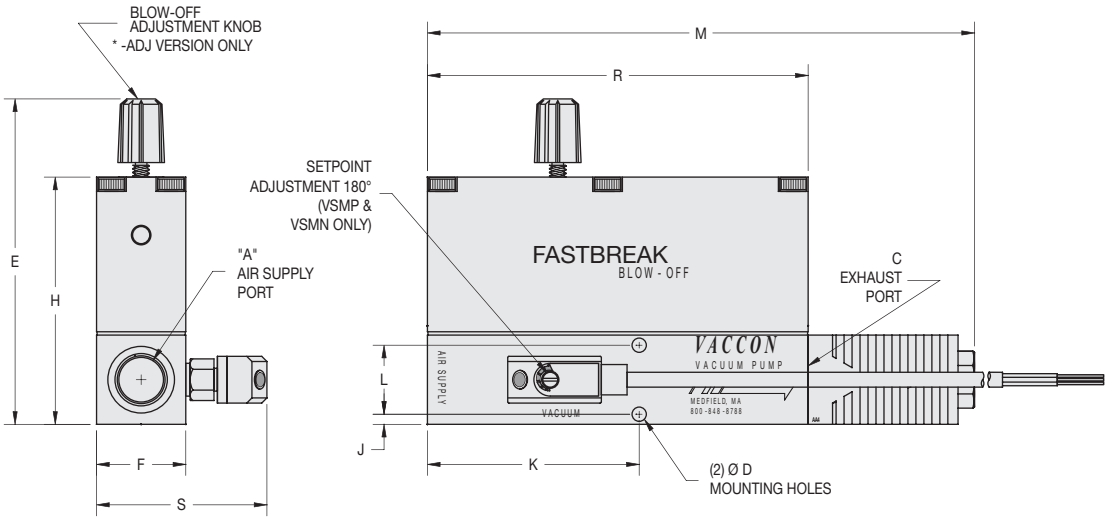
Specifications:

Weight 6.0 oz [170g]
Noise Level 58 dB

Model #	Imperial Dimensions (in.)													
VP1X (ADJ) w/STAA4	A	B	C	D	E*	F	H	J	K	L	M	N	P	R
	1/4 NPT F	1/8 NPT F	1/4 NPT F	0.12	2.74	0.75	2.08	0.09	1.78	0.58	6.17	0.38	1.10	3.20
Model #	**Metric Dimensions s (mm)**													
I-VP1X (ADJ) w/STAA4	A	B	C	D	E*	F	H	J	K	L	M	N	P	R
	G 1/4	G 1/8	G 1/4	3.0	69.5	19.1	52.8	2.2	45.2	14.7	156.8	9.5	27.9	81.3

*-ADJ Version Only

VP1X - (60, 90, 100, 150) (L, M or H) (-ADJ) Pump - Optional Switch/Sensor: VSMP or VSMN or VTMV



VP1X-90H-ADJ with VSMP switch

VP1X-100M with VSMP switch

Specifications:

Weight 6.6 oz [188g]
Noise Level 64 dB

Model #	Imperial Dimensions (in.)														
VP1X (ADJ) w/VSMP	A	B	C	D	E*	F	H	J	K	L	M	N	P	R	S
	1/4 NPT F	1/8 NPT F	1/4 NPT F	0.12	2.74	0.75	2.08	0.09	1.78	0.58	4.60	0.38	1.10	3.20	1.4
Model #	**Metric Dimensions s (mm)**														
I-VP1X (ADJ) w/VSMP	A	B	C	D	E*	F	H	J	K	L	M	N	P	R	S
	G 1/4	G 1/8	G 1/4	3.0	69.5	19.1	52.8	2.2	45.2	14.7	116.8	9.5	27.9	81.3	36.4

*-ADJ Version Only

Mid Series Venturi Vacuum Pump with Pneumatic Blow-off and Silencer

Fastbreak Mid Series: VP2X & VP2X-ADJ

VP2X-60H accurately stacks tiles with rapid part release blow-off.

VP2X-90M

VP2X-90M-ADJ

Ideal Applications:

Pick and place applications requiring accurate part placement and rapid part release:

- ~ Palletizing
- ~ Packaging machines
- ~ High speed labeling machines
- ~ Sheet feeders
- ~ Robotic end effectors
- ~ Automated assembly

Features/Benefits:

- ï Fast Response ñ Compact, lighweight, and installs close to vacuum point
- ï Trouble free operation:
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ Automatically cleans vacuum lines
  - ~ No downtime
- ï High productivity ñ Rapid part release, cycle rates up to 900/min
- ï Modular design ñ Add vacuum sensors and solenoid valves to create a complete vacuum system
- ï Multiple functions from just one PLC output ñ Requires fewer outputs, less costly, easy to program
- ï Reliable part detection ñ Factory installed miniature vacuum switches or sensors

Standard Pump:

VP2X & VP2X-ADJ air-powered venturi vacuum pumps are trusted for accurate part placement and rapid part release. The reliable Fastbreak Mid Series provides both vacuum and blow-off in one pump, using only one compressed air line. No electricity required.

The integrated pneumatic high-speed blow off on the VP2X pump provides a fixed-duration blow off, based on the volume of the housing. With the VP2X-ADJ adjustable vacuum pump, you can control the intensity of the blow-off using one fingertip adjustment knob. (Customer-supplied directional control valve with exhaust required).

For applications where you need to control the duration of the blow-off, please see VP30QR Series on page 135.

For applications where you need a solenoid operated pump with a pneumatic blow-off, please see VP2XV on page 105.

Performance Level Designations:

"L" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications

"M" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"H" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- ï ADJ version allows the user to set the intensity of the blow-off from no blow-off to full blow-off
- ï Interchangeable venturi cartridges ñ 11 different performance levels
- ï Factory-installed miniature vacuum switches or sensors for reliable part detection
- ï Silencers ñ ST4 (straight-through) silencer wonít clog, or STAA4 silencers for ultra quiet operation
- ï G port threads for metric machines ñ an ìGî prefix designates products with metric threads
- ï Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5BAR] standard, 60 PSI [4.0 BAR] optional

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Vacuum technology isnít an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

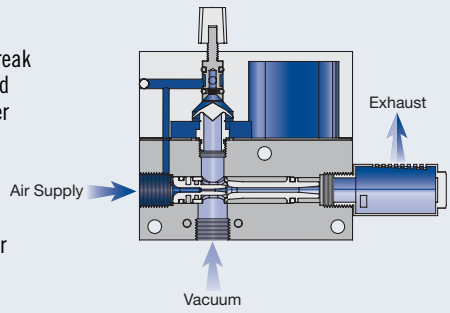
To download a complete set of drawings in 13 different CAD formats, please visit our website at www.vaccon.com

For more information or technical assistance, please call 508-359-7200 or 800-848-8788 or email engineering@vaccon.com

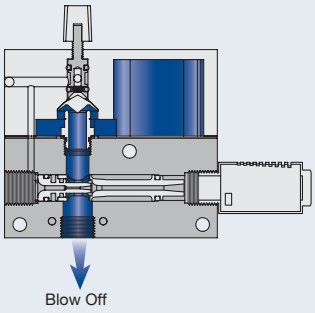
Principles of Operation: VP2X & VP2X-ADJ

Fastbreak pumps provide both suction and blow-off with a single supply of compressed air controlled by a solenoid valve.

Utilizing quick exhaust valve technology, Fastbreak pumps store compressed air in the upper chamber while simultaneously generating vacuum. The quick exhaust diaphragm seals the compressed air chamber from the suction line.



When the part is to be released, the solenoid valve* is de-energized. The vacuum stops and the rapid drop in pressure shifts the quick exhaust diaphragm into the up position allowing the store compressed air to vent into the vacuum line.



When handling small and lightweight parts, choose the adjustable version (-ADJ) shown above to control the blow-off intensity.

***Note:** The (customer supplied) solenoid valve controlling the compressed air to the Fastbreak pump must vent to atmosphere for the quick exhaust valve to actuate properly.

VP2X and VP2X-ADJ Standard Pump Specifications:

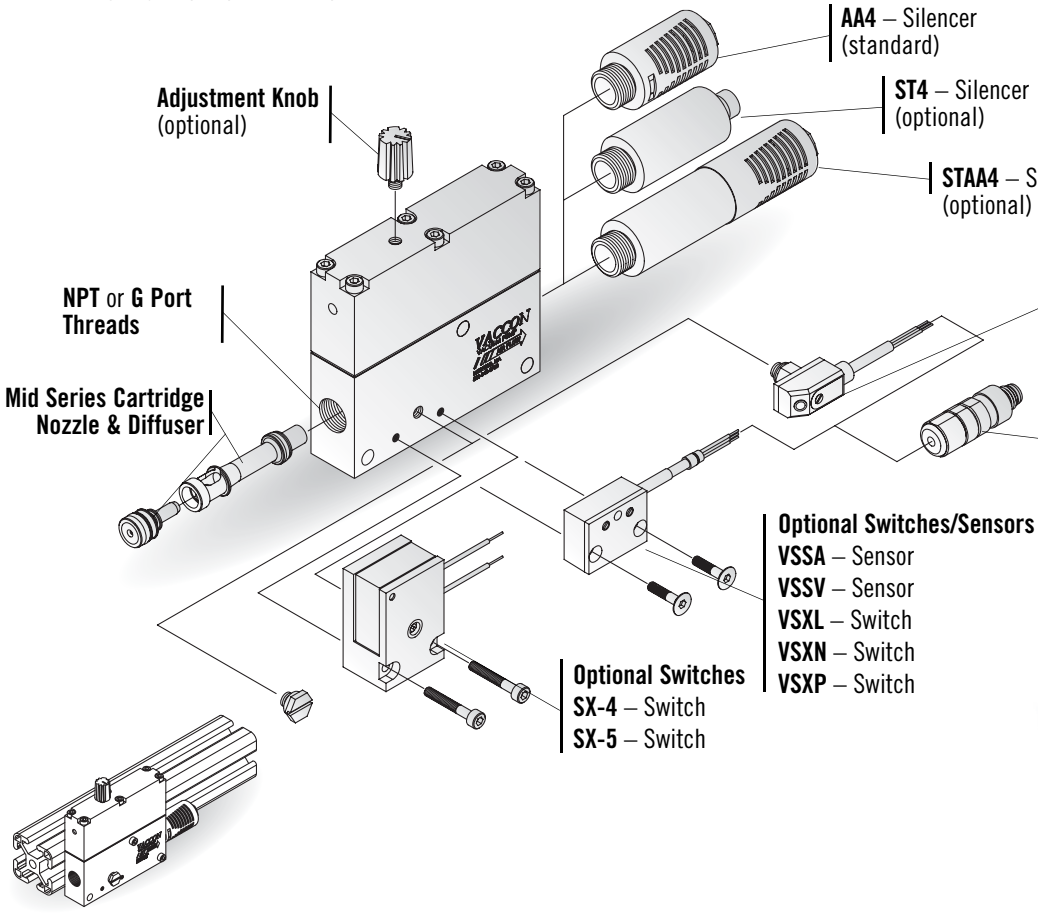
Body Material:	Anodized Aluminum, Nebar, Brass, Buna-N, Vinyl, Nylon, Alloy Steel (For silencer material, see pages 233-237)
Cartridge Material:	Nylon, Buna-N O-ring, (Other materials available, see page 7)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	+32°~125° F [0°~52°C]
Operating Pressure:	80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures
Cycle Rates:	Up to 900/min
Blow-off Response Time:	Instantaneous
Orientation:	Any position
Blow-off Duration:	100 milliseconds (based on system design)

VP2X and VP2X-ADJ Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF-125LPM – See page 282	Typically filters are not required, if desired Vaccon recommends – VF-250F – See page 282
Control Valve:	3 way/2 position, minimum orifice - 0.125" ID [3mm]	
Mounting Holes:	Mounting holes accept 10-32 [M5] screws	

VP2X & VP2X-ADJ Fastbreak Mid Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.



VP2X pumps are Fractional and Metric T-slot compatible. See EOAT Section.

Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here

VP2X - 60 - H - [ ] - ADJ - ST4 - [ ]

P/N	Thread
VP2X	NPT
I-VP2X	G Port

P/N	Max. Flow Level
-60	
-90	
-100	
-150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Operating Pressure
	80 PSI [5.5 BAR] - Std
-60	60 PSI [4.0 BAR]

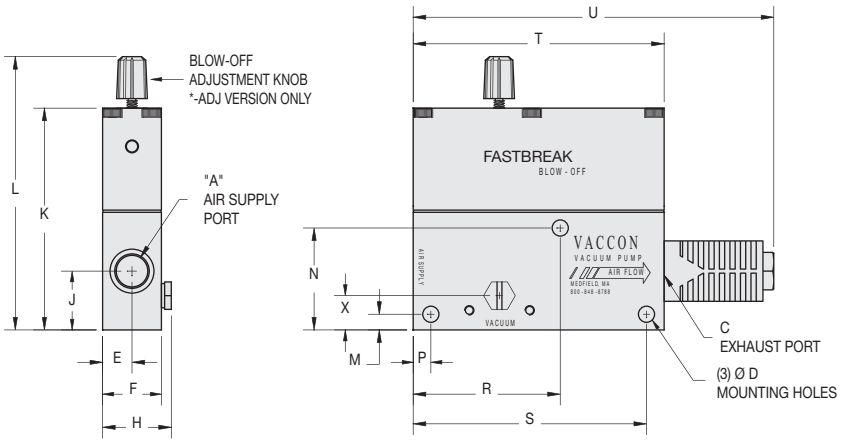
P/N	Switch/Sensor	w/Quick Disconnect
	None (Standard)	
VSMN	Switch – NPN	-QD
VSMP	Switch – PNP	-QD
VTMV	Sensor– 0-5VDC Output	-QD
VSSA	Sensor– 4-20mA Output	-QD
VSSV	Sensor– 0-5VDC Output	-QD
VSXL	Switch - Sinking	-QD
VSXN	Switch - Sinking	-QD
VSXP	Switch - Sourcing	-QD
SX-4	Switch - 2-14.8"Hg	N/A
SX-5	Switch - 7.4-30"Hg	N/A

P/N	Silencer
	AA4 Closed End (Standard)
ST4	Straight-through
STAA4	Hybrid

P/N	Adjustable Blow-off
	Not Adjustable (Standard)
ADJ	Adjustable Blow-off

For complete Performance Data, see page 150.

Standard Pump: VP2X-(60, 90, 100, 150) (L, M or H) (-ADJ)



VP2X-90H-ADJ with AA4 Silencer

VP2X-100M with AA4 Silencer

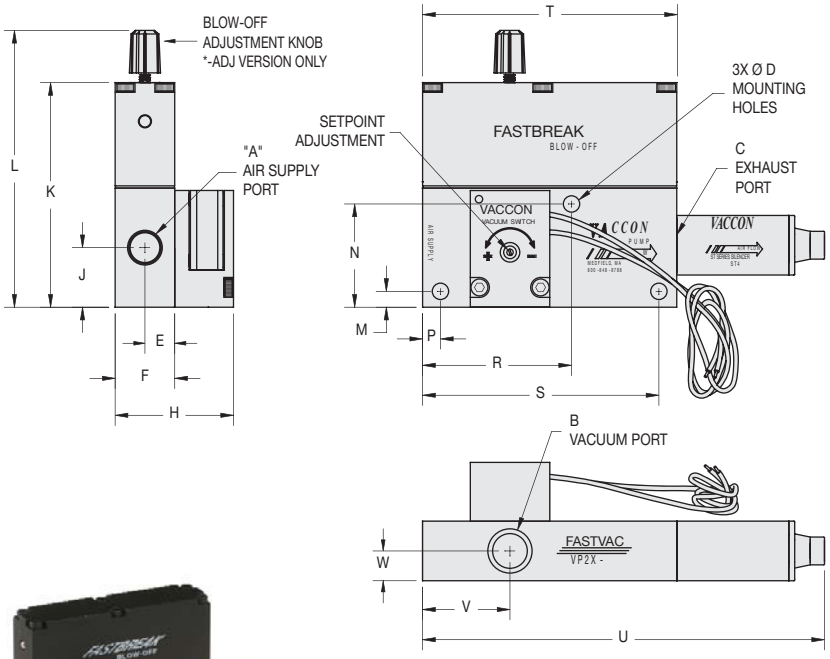
Specifications:

Weight 8.4 oz [238g]
Noise Level 64 dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W	X
VP2X (ADJ) w/AA4	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	0.38	0.75	0.88	0.75	2.83	3.49	0.20	1.30	0.23	1.88	2.98	3.20	4.60	1.10	0.38	0.44
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W	X
I-VP2X (ADJ) w/AA4	G 1/4	G 1/4	G 1/4	5.2	9.5	19.1	22.3	19.1	71.8	88.5	5.1	33.0	5.7	47.6	75.6	81.3	116.8	27.9	9.5	11.1

*-ADJ Version Only

VP2X-(60, 90, 100, 150) (L, M or H) (-ADJ) Pump – Optional ST4 Silencer and Vacuum Switch



VP2X-90M-ADJ with ST4 silencer and SX-4 vacuum switch

VP2X-100M with ST4 silencer and SX-4 vacuum switch

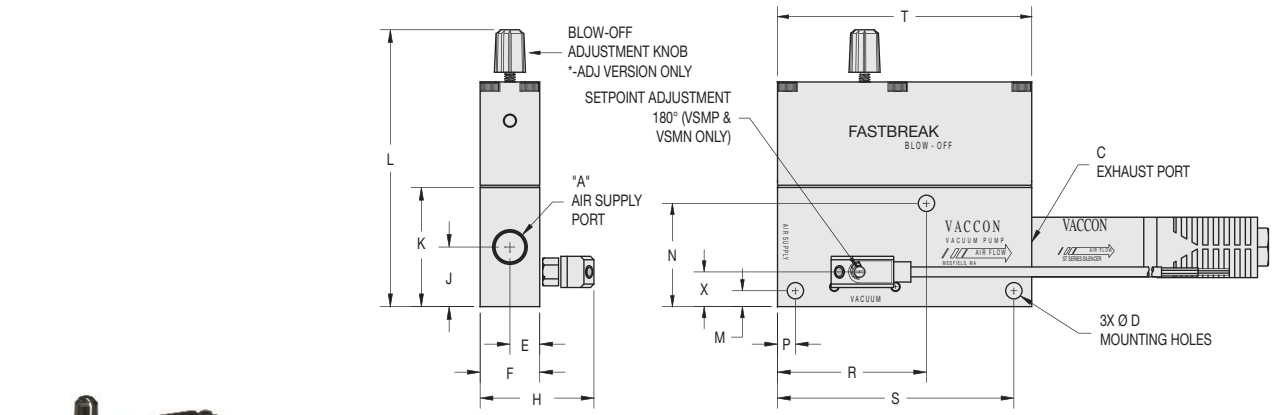
Specifications:

Weight	11 oz [312g]
Noise Level	66 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W
VP2X (ADJ) w/ST4, SX4	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	0.38	0.75	1.49	0.75	2.83	3.49	0.20	1.30	0.23	1.88	2.98	3.20	5.06	1.10	0.38
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W
I-VP2X (ADJ) w/ST4, SX4	G 1/4	G 1/4	G 1/4	5.2	9.5	19.1	37.8	19.1	71.8	88.5	5.1	33.0	5.7	47.6	75.6	81.3	128.5	27.9	9.5

*-ADJ Version Only

VP2X-(60, 90, 100, 150) (L, M or H) (-ADJ) Pump – Optional STAA4 Silencer and Optional Ultra-Mini Vacuum Switch/Sensor



VP2X-100M-ADJ with STAA4 Silencer and VSMP

VP2X-150H with STAA4 Silencer and VSMP

Specifications:

Weight	9.6 oz [272g]
Noise Level	58 dB

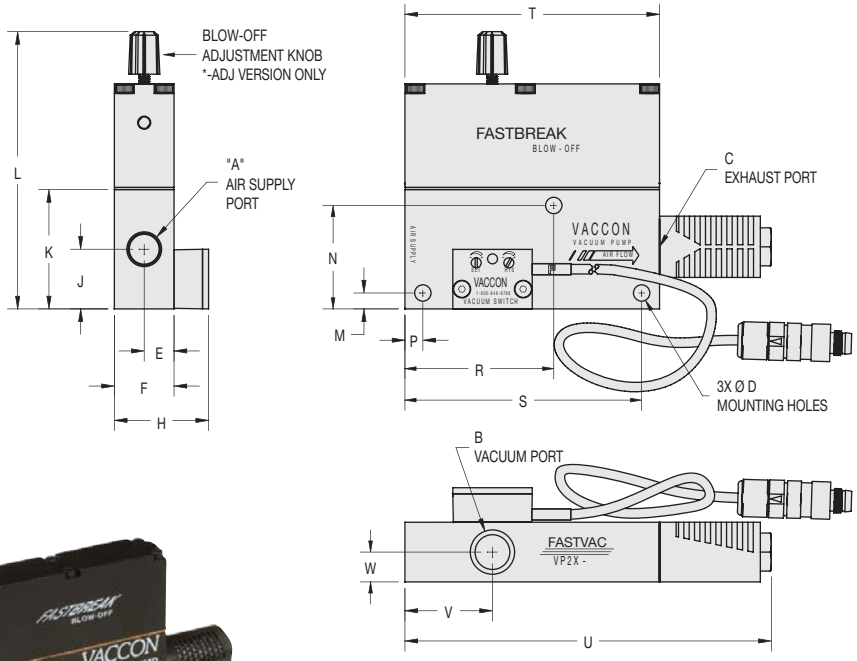
Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W	X
VP2X (ADJ) w/STAA4, VSMP	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	0.38	0.75	1.43	0.75	2.83	3.49	0.20	1.30	0.23	1.88	2.98	3.20	6.18	1.10	0.38	0.44
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W	X
I-VP2X (ADJ) w/STAA4, VSMP	G 1/4	G 1/4	G 1/4	5.2	9.5	19.1	36.4	19.1	71.8	88.5	5.1	33.0	5.7	47.6	75.6	81.3	157.0	27.9	9.5	11.2

*-ADJ Version Only

VP2X-(60, 90, 100, 150) (L, M or H) (-ADJ) Pump – Optional Mini Vacuum Switch/Sensor and Quick Disconnect

VP2X-100M-ADJ with VSXN-QD switch and Quick Disconnect

VP2X-90H with VSXN-QD Switch and Quick Disconnect



Specifications:

Weight 9 oz [255g]
Noise Level 64 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W
VP2X (ADJ) w/VSXN-QD	1/4 NPT F	1/4 NPT F	1/4 NPT F	0.21	0.38	0.75	1.18	0.75	2.83	3.49	0.20	1.30	0.23	1.88	2.98	3.20	4.60	1.10	0.38
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W
I-VP2X (ADJ) w/VSXN-QD	G 1/4	G 1/4	G 1/4	5.2	9.5	19.1	30.1	19.1	71.8	88.5	5.1	33.0	5.7	47.6	75.6	81.3	116.8	27.9	9.5

*-ADJ Version Only

Max Series Venturi Vacuum Pump with Pneumatic Blow-off and Silencer

Fastbreak Max Series: VP8X & VP8X-ADJ

VP8X-200H

VP8X-200M-ADJ

Ideal Applications:

Pick and place applications requiring accurate part placement and rapid part release:

- ~ Palletizing
- ~ Packaging machines
- ~ High speed labeling machines
- ~ Sheet feeders
- ~ Robotic end effectors
- ~ Automated assembly

Features/Benefits:

- **Fast Response – compact, lighweight, and installs close to vacuum point**
- **Trouble free operation:**
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ Automatically cleans vacuum lines
  - ~ No downtime
- **High productivity – rapid part release, cycle rates up to 900/min**
- **Modular design – add vacuum sensors and solenoid valves to create a complete vacuum system**
- **Multiple functions from just one PLC output – requires fewer outputs, less costly, easy to program**
- **Reliable part detection – factory installed miniature vacuum switches or sensors**

Standard Pump:

VP8X & VP8X-ADJ air-powered venturi vacuum pumps are trusted for accurate part placement and rapid part release. The reliable Fastbreak Max Series provides both vacuum and blow-off in one pump, using only one compressed air line. No electricity required.

The integrated pneumatic high-speed blow off on the VP8X provides a fixed-duration blow off, based on the volume of the housing. With the VP8X-ADJ adjustable vacuum pump, you can control the intensity of the blow-off using one fingertip adjustment knob. (Customer-supplied directional control valve with exhaust required.)

For applications where you need a solenoid operated pump with a pneumatic blow-off, please see VP8XV on page 113.

Performance Level Designations:

"**L**" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- ADJ version allows the user to set the intensity of the blow-off from no blow-off to full blow-off
- Factory-installed miniature vacuum switches or sensors for reliable part detection
- FA-51-3/8 silencer for high flow applicatrions, STAA6 hybrid silencer for ultra-quiet operation
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5BAR] standard, 60 PSI [4.0 BAR] optional

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Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

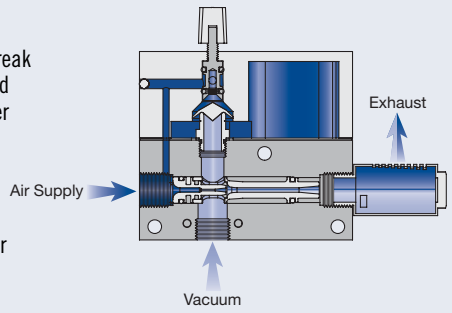
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

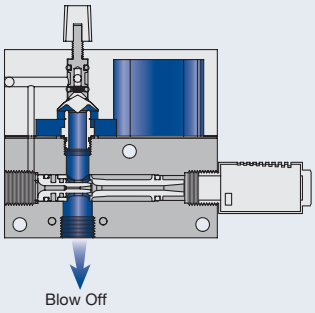
Principles of Operation: VP8X & VP8X-ADJ

Fastbreak pumps provide both suction and blow-off with a single supply of compressed air controlled by a solenoid valve.

Utilizing quick exhaust valve technology, Fastbreak pumps store compressed air in the upper chamber while simultaneously generating vacuum. The quick exhaust diaphragm seals the compressed air chamber from the suction line.



When the part is to be released, the solenoid valve* is de-energized. The vacuum stops and the rapid drop in pressure shifts the quick exhaust diaphragm into the up position allowing the store compressed air to vent into the vacuum line.



When handling small and lightweight parts, choose the adjustable version (-ADJ) shown above to control the blow-off intensity.

*__Note:__ The (customer supplied) solenoid valve controlling the compressed air to the Fastbreak pump must vent to atmosphere for the quick exhaust valve to actuate properly.

VP8X and VP8X-ADJ Standard Pump Specifications:

Body Material:	Anodized Aluminum, Nebar, Brass, Buna-N, Vinyl, Nylon, Alloy Steel (Buna-N on ADJ pumps only) (For silencer material, see pages 235-239)
Medium:	Filtered (100 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	+32°~125° F [0°~52°C]
Operating Pressure:	80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures
Cycle Rates:	Up to 900/min
Blow-off Response Time:	Instantaneous
Orientation:	Any position
Blow-off Duration:	100 milliseconds (based on system design)

VP8X and VP8X-ADJ Operating and Installation Instructions:

Supply Line:	3/8" O.D. [10mm] tube recommended, not to exceed 3' [1M]
Vacuum Line:	3/8" O.D. [10mm] tube recommended, not to exceed 3' [1M]
Control Valve:	3 way/2 position, minimum orifice - 0.156" diameter [4mm]
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF375F. See page 282.
Mounting Holes:	Mounting holes accept #10-32 [M5] screws

VP8X & VP8X-ADJ Fastbreak Max Series Configurations and Options:

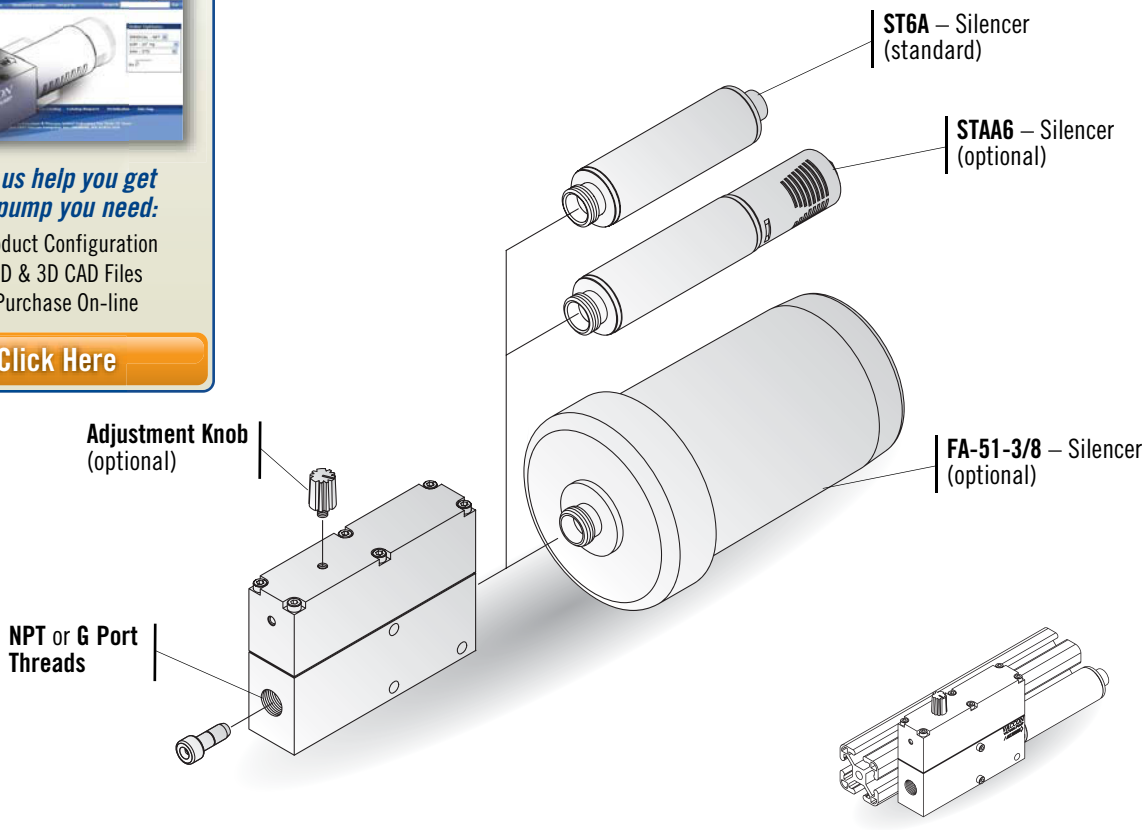
All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here



VP8X pumps are Fractional and Metric T-slot compatible. See EOAT Section.

How to Specify:

VP8X-200 - H - 60 - ADJ - ■

P/N	Thread
VP8X-200	NPT
I-VP8X-200	G-Port

P/N	Max. Vac Level
L	10"Hg [339 mbar]
M	20"Hg [677 mbar]
H	28"Hg [948 mbar]

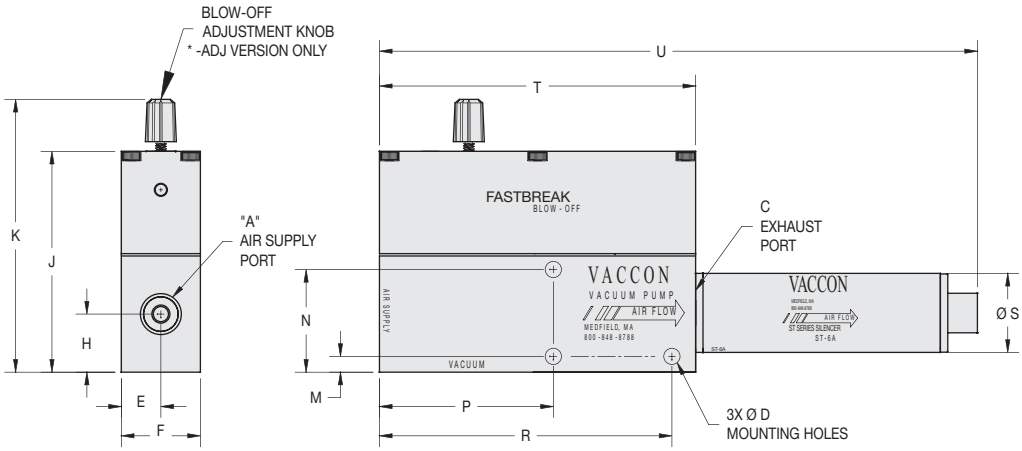
P/N	Silencer
	ST6A Straight-through (Std)
STAA6	Hybrid
FA-51-3/8	High Flow

P/N	Adjustable Blow-off
	Not Adjustable (Standard)
ADJ	Adjustable Blow-off

P/N	Operating Pressure
	80 PSI [5.5 Bar] (Standard)
60	60 PSI [4.1 Bar]

For complete Performance Data, see page 153.

Standard Pump: VP8X-200 (L, M or H) (-ADJ)



VP8X-200H-ADJ with ST6A Silencer

VP8X-200M with ST6A Silencer

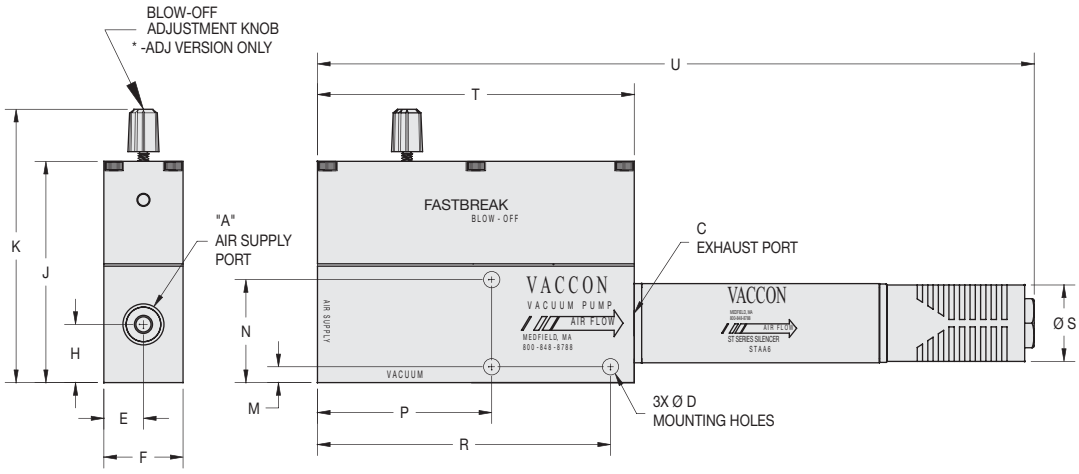
Specifications:

Weight	15 oz [425g]
Noise Level	72 dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
VP8X-200 (ADJ) w/ST6A	1/4 NPT F	3/8 NPT F	3/8 NPT F	0.21	0.50	1.00	0.75	2.79	3.45	N/A	0.20	1.30	2.20	3.70	1.00	4.00	7.57	1.13	0.50
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
I-VP8X-200 (ADJ) w/ST6A	G 1/4	G 3/8	G 3/8	5.2	12.7	25.4	19.1	71.0	87.6	N/A	5.1	33.0	55.9	94.0	25.4	101.6	192.2	28.6	12.7

*-ADJ Version Only

VP8X-200 (L, M or H) (-ADJ) Pump – Optional Silencer: STAA6



VP8X-200H-ADJ with STAA6 Silencer

VP8X-200M with STAA6 Silencer

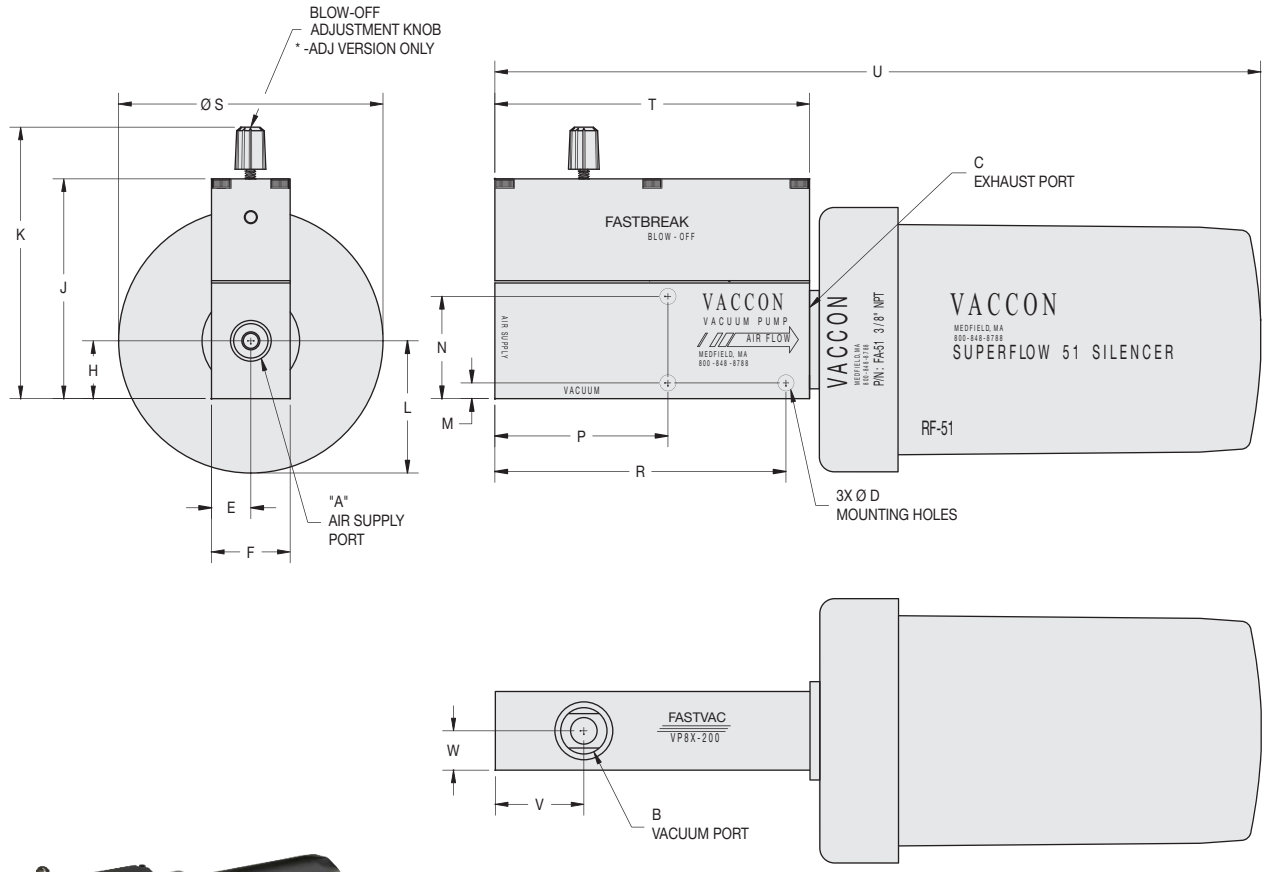
Specifications:

Weight 15.6 oz [442g]
Noise Level 64 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
VP8X-200 (ADJ) w/STAA6	1/4 NPT F	3/8 NPT F	3/8 NPT F	0.21	0.50	1.00	0.75	2.79	3.45	N/A	0.20	1.30	2.20	3.70	0.965	4.00	9.05	1.13	0.50
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
I-VP8X-200 (ADJ) w/STAA6	G 1/4	G 3/8	G 3/8	5.2	12.7	25.4	19.1	71.0	87.6	N/A	5.1	33.0	55.9	94.0	25.4	101.6	229.9	28.6	12.7

*-ADJ Version Only

VP8X-200 (L, M or H) (-ADJ) Pump – Optional Silencer: FA-51-3/8



VP8X-200H-ADJ with FA-51-3/8 silencer

VP8X-200M with FA-51-3/8 silencer

Specifications:

Weight 2 lbs [1kg]
Noise Level 73 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
VP8X-200 (ADJ) w/ FA-51-3/8	1/4 NPT F	3/8 NPT F	3/8 NPT F	0.21	0.50	1.00	0.75	2.79	3.45	1.68	0.20	1.30	2.20	3.70	3.36	4.00	9.74	1.13	0.50
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
I-VP8X-200 (ADJ) w/ FA-51-3/8	G 1/4	G 3/8	G 3/8	5.2	12.7	25.4	19.1	71.0	87.6	42.7	5.1	33.0	55.9	94.0	85.3	101.6	247.3	28.6	12.7

*-ADJ Version Only

Mid Series Venturi Vacuum Pump, Solenoid Operated with Pneumatic Blow-off and Silencer

Mid Series: VP2XV & VP2XV-ADJ

VP2XV-90H loads and unloads water bottle capping operation

VP2XV-100M-ADJ

Ideal Applications:

Pick and place for applications requiring accurate part placement and rapid part release:

- Integrated circuits
- Packaging machines
- High speed labeling machines
- Sheet feeders
- Robotic end effectors
- Automated assembly

Features/Benefits:

- Easy installation ñ includes a solenoid-operated control valve; no assembly required, pre-plumbed and pre-sized to fit the pump
- Reliable part detection ñ factory-installed miniature vacuum switches or sensors
- High Productivity ñ rapid part release, cycle rates up to 900/min
- Fast Response ñ compact, lightweight, and installs close to vacuum point
- Trouble free operation
  - ~ No moving parts to wear
  - ~ Automatically cleans vacuum lines
  - ~ No downtime
- Modular design ñ add vacuum sensors, solenoid valves and blow off capability to create a complete vacuum system
- Multiple functions from just one output ñ requires fewer outputs, less costly, easy to program and easy to plumb

Standard Pump:

VP2XV and VP2XV-ADJ air-powered venturi vacuum pumps are the solution for the accurate part placement and rapid part release operations requiring a solenoid-operated pump with pneumatic blow-off.

To provide a complete, compact system, the VP2XV &VP2XV-ADJ pumps include a pre-plumbed and pre-sized solenoid-operated control valve.

The reliable VP2XV pump provides both vacuum and blow-off in one pump, using only one compressed air line and one electric signal, minimizing the number of outputs required. The integrated pneumatic high speed blow-off provides a fixed-duration blow-off based on the volume of the chamber.

With the VP2XV-ADJ, you can control the intensity of the blow-off using one fingertip adjustment knob.

For applications where you need to control the duration of the blow-off, please see VP30QR Series on page 135.

Performance Level Designations:

"L" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications

"M" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"H" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Product Update: The VP61 Series has been discontinued.
The VP2X and the VP2XV Series are equivalent pumps.

Pump Options:

- ADJ version allows the user to set the intensity of the blow-off from no blow-off to full blow-off
- Choice of valve voltage ñ 24vDC or 110vAC
- Interchangeable venturi cartridges ñ 11 different performance levels
- Factory-installed or field mounted miniature vacuum switches or sensors for reliable part detection
- Silencers ñ ST4 ñ straight-through silencer wonít clog, or STAA4 silencers for ultra quiet operation
- G port threads for metric machines ñ an ìGî prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional

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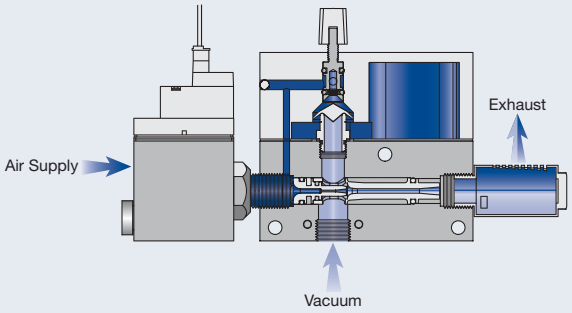
Vacuum technology isnít an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at www.vaccon.com

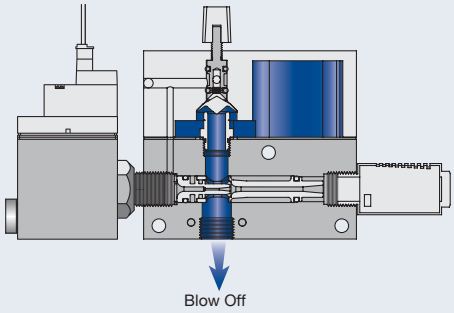
For more information or technical assistance, please call 508-359-7200 or 800-848-8788 or email engineering@vaccon.com

Principles of Operation: Blow-off Technology – VP2XV, VP2XV-ADJ

Fastbreak pumps provide both suction and blow-off with a single supply of compressed air controlled by a solenoid valve.



Utilizing quick exhaust valve technology, Fastbreak pumps store compressed air in the upper chamber while simultaneously generating vacuum. The quick exhaust diaphragm seals the compressed air chamber from the suction line.



To release the part, the solenoid valve is de-energized. The vacuum stops and the rapid drop in pressure shifts the quick exhaust diaphragm into the up position allowing the store compressed air to vent into the vacuum line.

When handling small and lightweight parts, choose the adjustable version (-ADJ) shown above, to control the blow-off intensity.

VP2XV & VP2XV-ADJ Pump Specifications:

Body Material:	Anodized Aluminum, Nebar, Buna-N, Brass,Vinyl, Nylon, Alloyed Steel (For silencer material, see pages 233-237)
Cartridge Material:	Nylon, Buna-N O-ring (Other materials available, see page 7)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	+32°~125° F [-0°~52°C]
Operating Pressure:	80 PSI [5.5 BAR] Standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures
Cycle Rates:	Up to 900 cycles per minute
Blow-off Response Time:	Instantaneous
Orientation:	Any position
Blow-off Duration:	100 milliseconds (based on system design)

3-Way Pilot Valve Specifications

Valve Type:	Integral 3-way solenoid, 24vDC or 110vAC, normally closed
Valve Body Material:	Copper Nylon, Stainless Steel
Valve Seal Material:	Buna-N
Valve Operating Pressure:	0 to 100 PSI [0 to 7 BAR]
Average Life:	50 million cycles
Power Consumption:	24vDC: 1.3 watts, 110vAC: 1.0 watts
Response Time:	8 milliseconds
Cycle Rate:	Up to 45 cycles per second
Electrical Connection:	2 pole plug in cable with 24 AWG, 3' [1M] flying leads
Manual Override:	Yes, non-locking, spring return

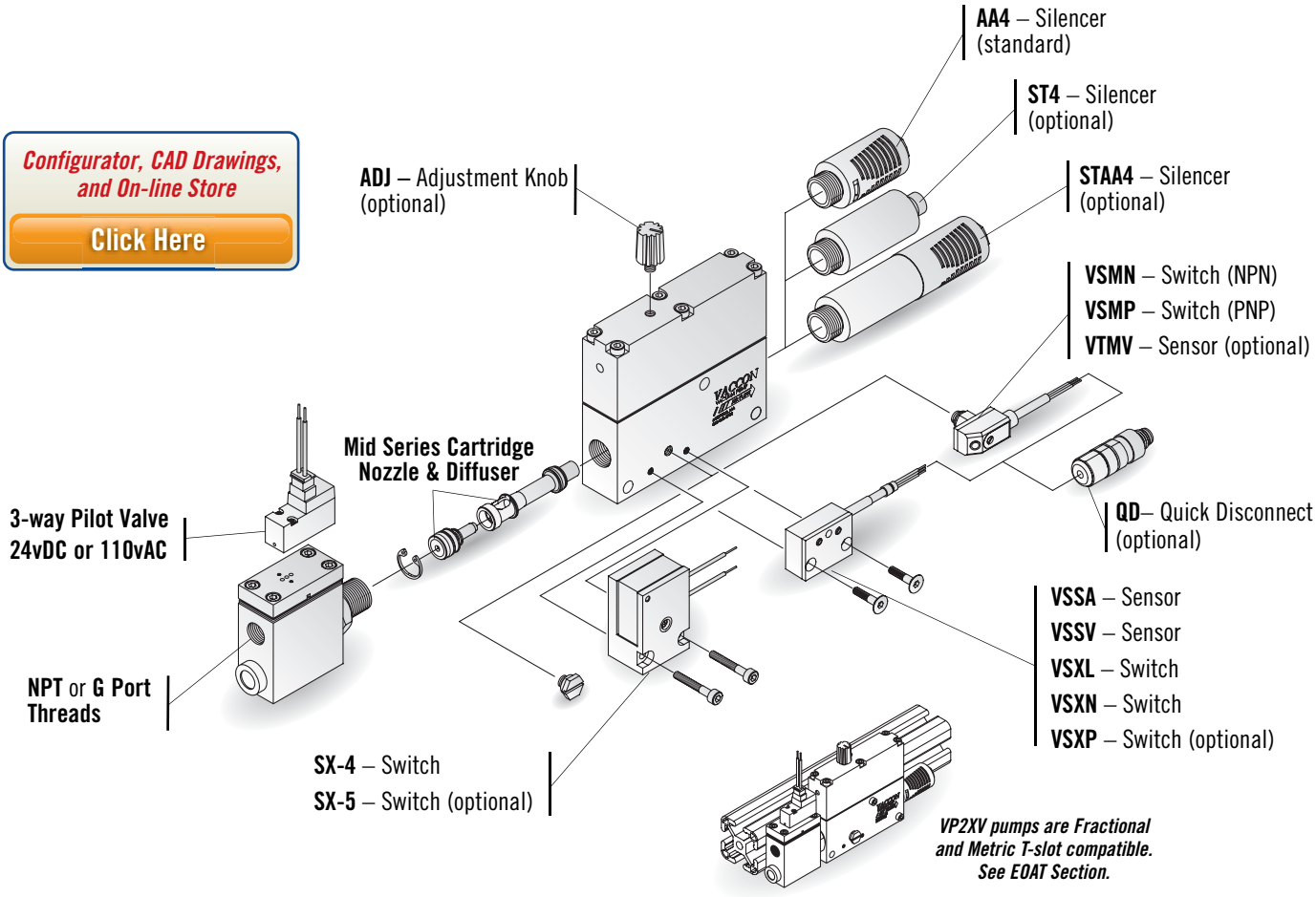
VP2XV & VP2XV-ADJ Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF-125LPM – See page 282	Typically filters are not required, if desired Vaccon recommends – VF-250F – See page 282
Mounting Holes:	Mounting holes accept 10-32 [M5] screws	

VP2XV & VP2XV-ADJ Fastbreak Mid Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

Configurator, CAD Drawings, and On-line Store
Click Here



VP2XV pumps are Fractional and Metric T-slot compatible. See EOAT Section.

How to Specify:

VP2XV - 60 H - 110vAC - ■ - ADJ - ST4 - VSMP

P/N	Thread
VP2X	NPT
I-VP2X	G-Port

P/N	Max. Flow Level
-60	
-90	
-100	
-150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Voltage
24vDC	24vDC
110vAC	110vAC

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Std)
60	60 PSI [4.0 BAR]

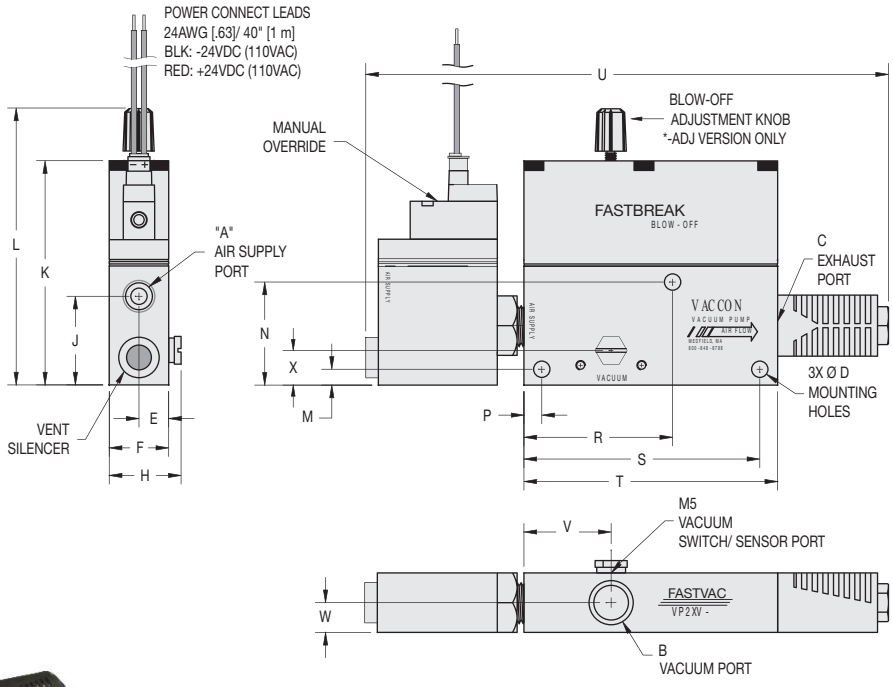
P/N	Switch/Sensor	w/Quick Disconnect
	None (Standard)	
VSMN	Switch – NPN	-QD
VSMP	Switch – PNP	-QD
VTMV	Sensor – 0-5VDC Output	-QD
VSSA	Sensor – 4-20mA Output	-QD
VSSV	Sensor – 0-5VDC Output	-QD
VSXL	Switch – Sinking	-QD
VSXN	Switch – Sinking	-QD
VSXP	Switch – Sourcing	-QD
SX-4	Switch – 2-14.8"Hg	N/A
SX-5	Switch – 7.4-30"Hg	N/A

P/N	Silencer
	AA4 – Closed end (Standard)
ST4	Straight-Through
STAA4	Hybrid

P/N	Adjustable Blow-off
	Not Adjustable (Standard)
ADJ	Adjustable Blow-off

For complete Performance Data, see page 150.

Standard Pump: VP2XV - (60, 90, 100, 150) (L, M, H) (-ADJ)



VP2XV-90H-ADJ with AA4 Silencer

VP2XV-100M with AA4

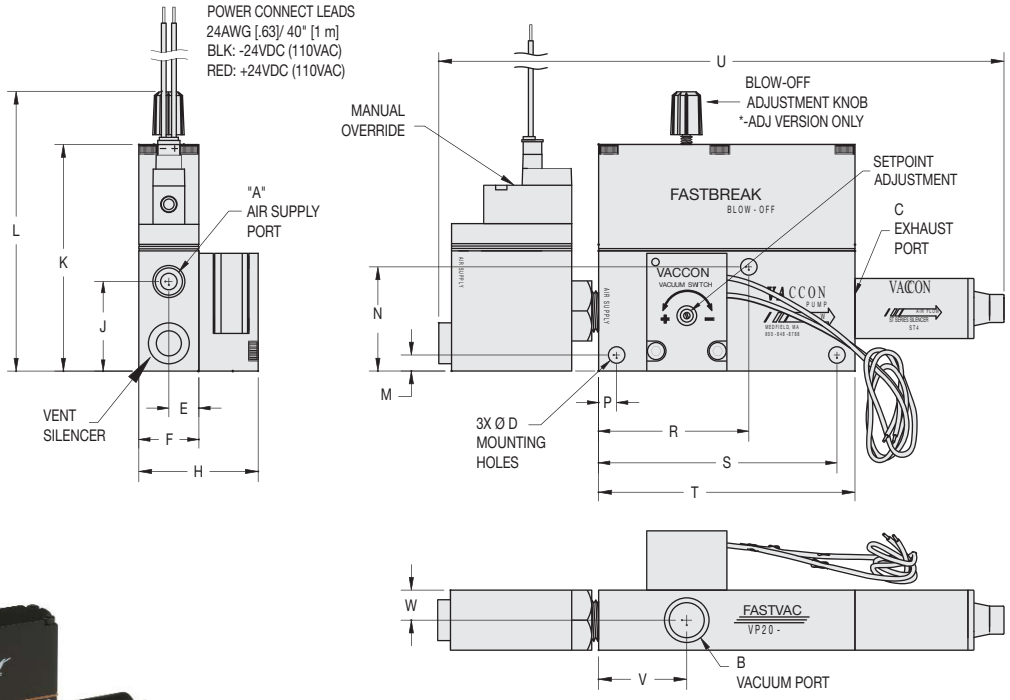
Specifications:

Weight 12 oz [340g]
Noise Level 64 dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W	X
VP2XV w/AA4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.21	0.38	0.75	0.91	1.12	2.83	3.49	0.20	1.30	0.23	1.88	2.98	3.20	6.60	1.10	0.38	0.44
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W	X
I-VP2XV w/AA4	G 1/8	G 1/4	G 1/4	5.2	9.5	19.1	23.0	28.4	71.8	88.5	5.1	33.0	5.7	47.6	75.6	81.3	167.6	27.9	9.5	11.1

*-ADJ Version Only

VP2XV - (60, 90, 100, 150) (L, M, H) (-ADJ) Pump - Optional ST4 Silencer and Vacuum Switch



VP2XV-60M-ADJ with ST4 Silencer and SX-4 Vacuum Switch

VP2XV-90M with ST4 Silencer and SX-4 Vacuum Switch

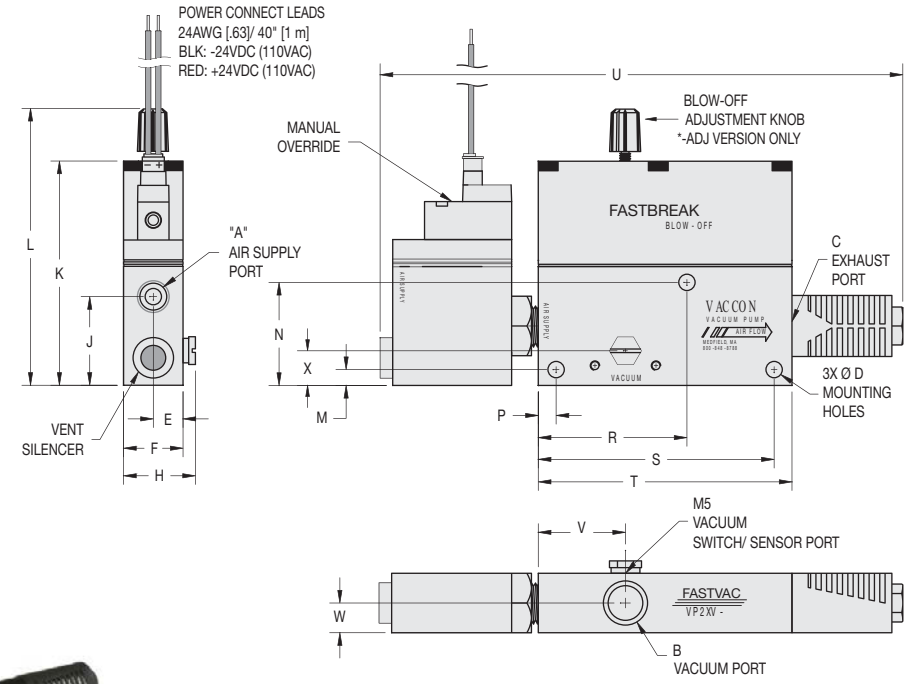
Specifications:

Weight 15 oz [425g]
Noise Level 66 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W
VP2XV w/ST4, SX4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.21	0.38	0.75	1.49	1.12	2.83	3.49	0.20	1.30	0.23	1.88	2.98	3.20	7.06	1.10	0.38
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W
I-VP2XV w/ST4, SX4	G 1/8	G 1/4	G 1/4	5.2	9.5	19.1	37.8	28.4	71.8	88.5	5.1	33.0	5.7	47.6	75.6	81.3	179.2	27.9	9.5

*-ADJ Version Only

VP2XV - (60, 90, 100, 150) (L, M, H) (-ADJ) Pump - Optional STAA4 Silencer and Ultra-Mini Vacuum Switch



VP2XV-150H-ADJ with STAA4 Silencer and VSMP Vacuum Switch

VP2XV-100H with STAA4 Silencer and VSMP Vacuum Switch

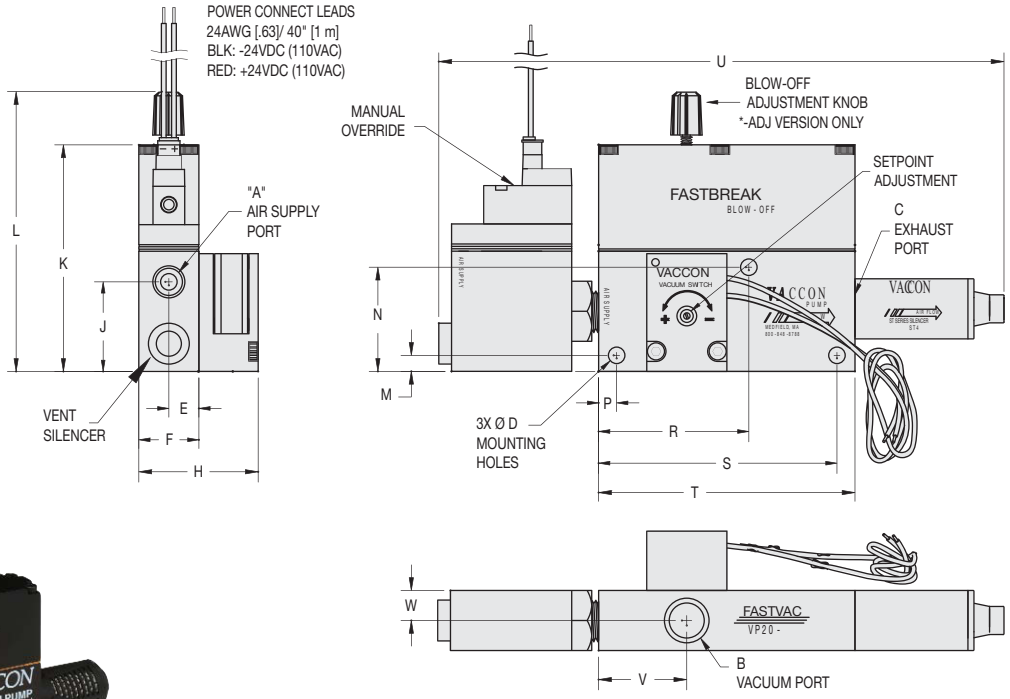
Specifications:

Weight 14 oz [397g]
Noise Level 58 dB

Model #	Imperial Dimensions (in.)																			
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W	X
VP2XV w/STAA4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.21	0.38	0.75	1.43	1.12	2.83	3.49	0.20	1.30	0.23	1.88	2.98	3.20	8.19	1.10	0.38	0.44
Model #	**Metric Dimensions (mm)**																			
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W	X
I-VP2XV w/STAA4	G 1/8	G 1/4	G 1/4	5.2	9.5	19.1	36.4	28.4	71.8	88.5	5.1	33.0	5.7	47.6	75.6	81.3	208.0	27.9	9.5	11.2

*-ADJ Version Only

VP2XV - (60, 90, 100, 150) (L, M, H) (-ADJ) Pump - Optional Mini Switch/Sensor and Quick Disconnect



VP2XV-150H-ADJ with VSXN-QD Vacuum Switch and Quick Disconnect

VP2XV-100H with VSXN-QD Vacuum Switch and Quick Disconnect

Specifications:

Weight 13 oz [369g]
Noise Level 64 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W
VP2XV w/VSXN-QD	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.21	0.38	0.75	1.18	1.12	2.83	3.49	0.20	1.30	0.23	1.88	2.98	3.20	6.60	1.10	0.38
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K	L*	M	N	P	R	S	T	U	V	W
I-VP2XV w/VSXN-QD	G 1/8	G 1/4	G 1/4	5.2	9.5	19.1	30.1	28.4	71.8	88.5	5.1	33.0	5.7	47.6	75.6	81.3	167.2	27.9	9.5

*-ADJ Version Only

Max Series Venturi Vacuum Pump, Solenoid Operated with Pneumatic Blow-off and Silencer

Mid Series: VP8XV-200 & VP8XV-200-ADJ

VP8XV-200H

VP8XV-200M-ADJ

Standard Pump:

VP8XV and VP8XV-ADJ air-powered venturi vacuum pumps are the solution for the accurate part placement and rapid part release operations requiring a solenoid-operated pump with pneumatic blow-off.

To provide a complete, compact system, the VP8XV & VP8XV-ADJ pumps include a pre-plumbed and pre-sized solenoid-operated control valve.

The reliable VP8XV pump provides both vacuum and blow-off in one pump, using only one compressed air line and one electric signal, minimizing the number of outputs required. The integrated pneumatic high speed blow-off provides a fixed-duration blow-off based on the volume of the chamber.

With the VP8XV-ADJ, you can control the intensity of the blow-off using one fingertip adjustment knob.

Performance Level Designations:

"**L**" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Ideal Applications:

Pick and place for applications requiring accurate part placement and rapid part release:

- **Integrated circuits**
- **Packaging machines**
- **High speed labeling machines**
- **Sheet feeders**
- **Robotic end effectors**
- **Automated assembly**

Features/Benefits:

- **Easy installation – includes a solenoid-operated control valve; no assembly required, pre-plumbed and pre-sized to fit the pump**
- **Reliable part detection – factory-installed miniature vacuum switches or sensors**
- **High Productivity – rapid part release, cycle rates up to 900/min**
- **Fast Response – compact, lightweight, and installs close to vacuum point**
- **Trouble free operation**
  - **~ No moving parts to wear**
  - **~ Automatically cleans vacuum lines**
  - **~ No downtime**
- **Modular design – add vacuum sensors, solenoid valves and blow off capability to create a complete vacuum system**
- **Multiple functions from just one output – requires fewer outputs, less costly, easy to program and easy to plumb**

Pump Options:

- ADJ version allows the user to set the intensity of the blow-off from no blow-off to full blow-off
- Choice of valve voltage – 24vDC or 110vAC
- Factory-installed miniature vacuum switches or sensors for reliable part detection
- Silencers – STAA6 – straight-through for ultra quiet operation, FA-51-3/8 for high flow applications
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional

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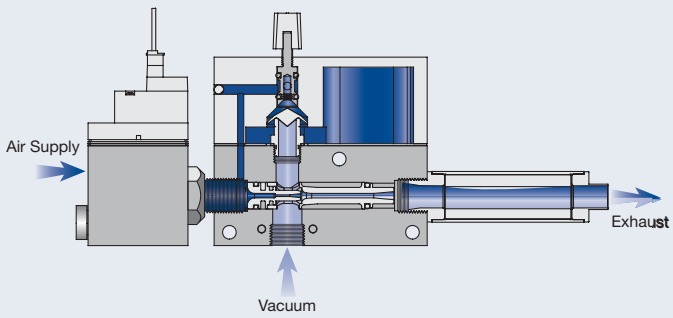
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

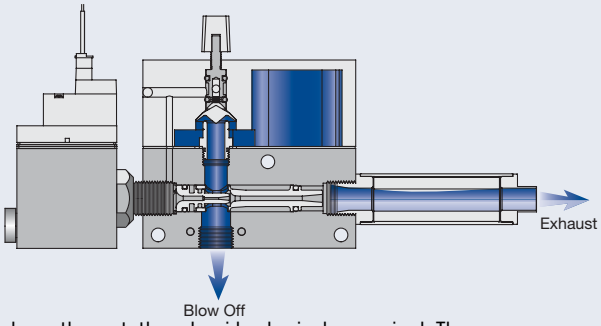
For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Principles of Operation: Blow-off Technology – VP8XV, VP8XV-ADJ

Fastbreak pumps provide both suction and blow-off with a single supply of compressed air controlled by a solenoid valve.



Utilizing quick exhaust valve technology, Fastbreak pumps store compressed air in the upper chamber while simultaneously generating vacuum. The quick exhaust diaphragm seals the compressed air chamber from the suction line.



To release the part, the solenoid valve is de-energized. The vacuum stops and the rapid drop in pressure shifts the quick exhaust diaphragm into the up position allowing the store compressed air to vent into the vacuum line.

When handling small and lightweight parts, choose the adjustable version (-ADJ) shown above, to control the blow-off intensity.

VP8XV & VP8XV-ADJ Pump Specifications:

Body Material:	Anodized Aluminum, Nebar, Brass, Vinyl, Nylon, Alloy Steel (Buna-N on ADJ pumps only) (For silencer material, see pages 235-239)
Medium:	Filtered (100 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	+32°~125° F [-0°~52°C]
Operating Pressure:	80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures
Cycle Rates:	Up to 900 cycles per minute
Blow-off Response Time:	Instantaneous
Orientation:	Any position
Blow-off Duration:	100 milliseconds (based on system design)

3-Way Pilot Valve Specifications

Valve Type:	Integral 3-way solenoid, 24vDC or 110vAC, normally closed
Valve Body Material:	Copper, Nylon, Stainless Steel
Valve Seal Material:	Buna-N
Valve Operating Pressure:	0 to 100 PSI [0 to 7 BAR]
Average Life:	50 million cycles
Power Consumption:	24vDC: 1.3 watts, 110vAC: 1.0 watts
Response Time:	8 milliseconds
Cycle Rate:	Up to 45 cycles per second
Electrical Connection:	2 pole plug-in cable with 24 AWG, 3' [1M] flying leads
Manual Override:	Yes, non-locking, spring return

VP8XV and VP8XV-ADJ Operating and Installation Instructions:

Supply Line:	3/8" O.D. [10mm] tube recommended, not to exceed 3' [1M]
Vacuum Line:	3/8" O.D. [10mm] tube recommended, not to exceed 3' [1M]
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF375F. See page 282.
Mounting Holes:	Mounting holes accept #10-32 [M5] screws

VP8XV & VP8XV-ADJ Max Series Configurations and Options:

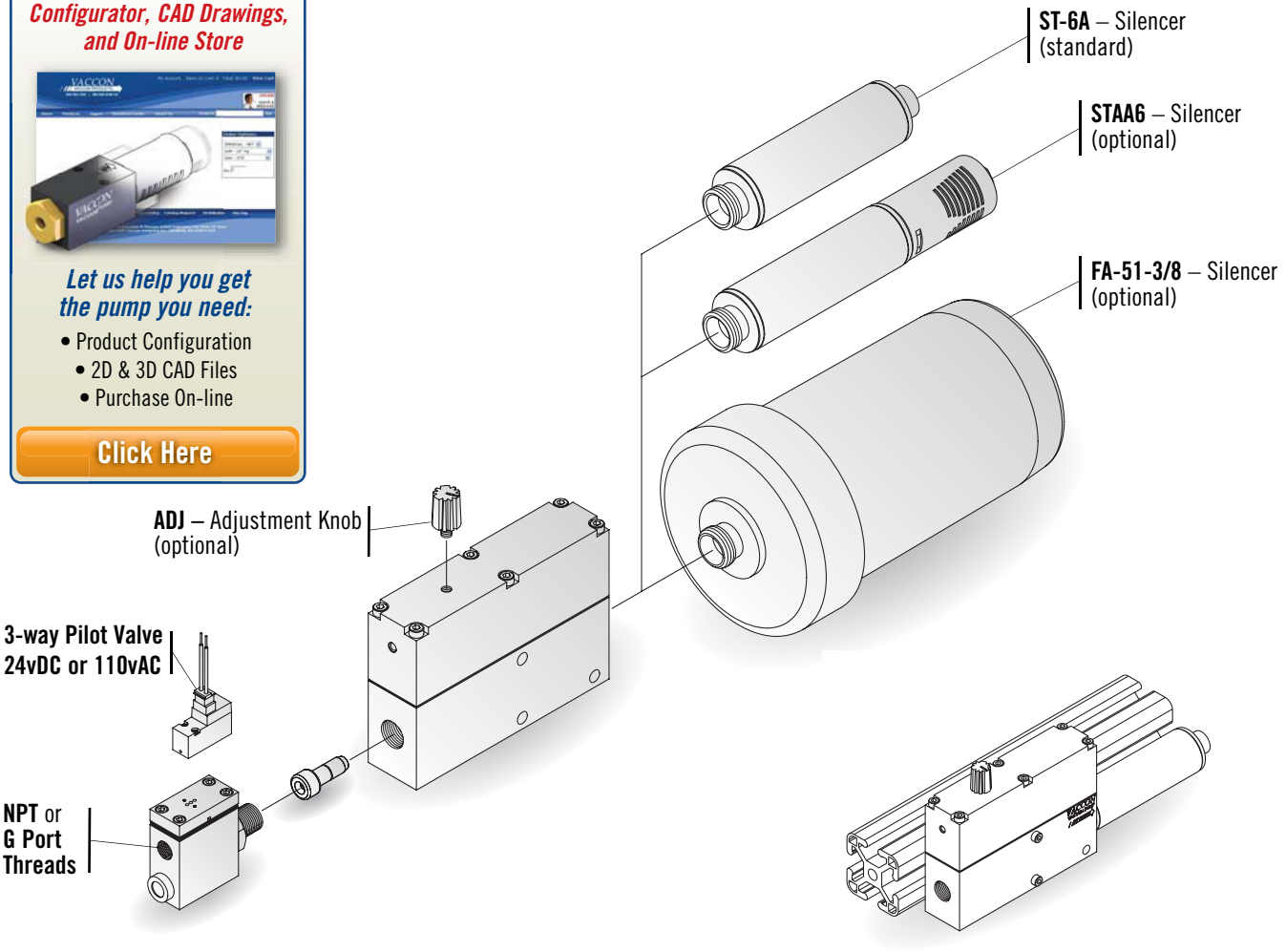
All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here



VP8XV pumps are Fractional and Metric T-slot compatible. See EOAT Section.

How to Specify:

VP8XV-200 - H - 24vDC - 60 - ADJ - ☐

P/N	Thread
VP8XV-200	NPT
I-VP8XV-200	G-Port

P/N	Max. Vac Level
L	10"Hg [339 mbar]
M	20"Hg [677 mbar]
H	28"Hg [948 mbar]

P/N	Voltage
24vDC	24vDC
110vAC	110vAC

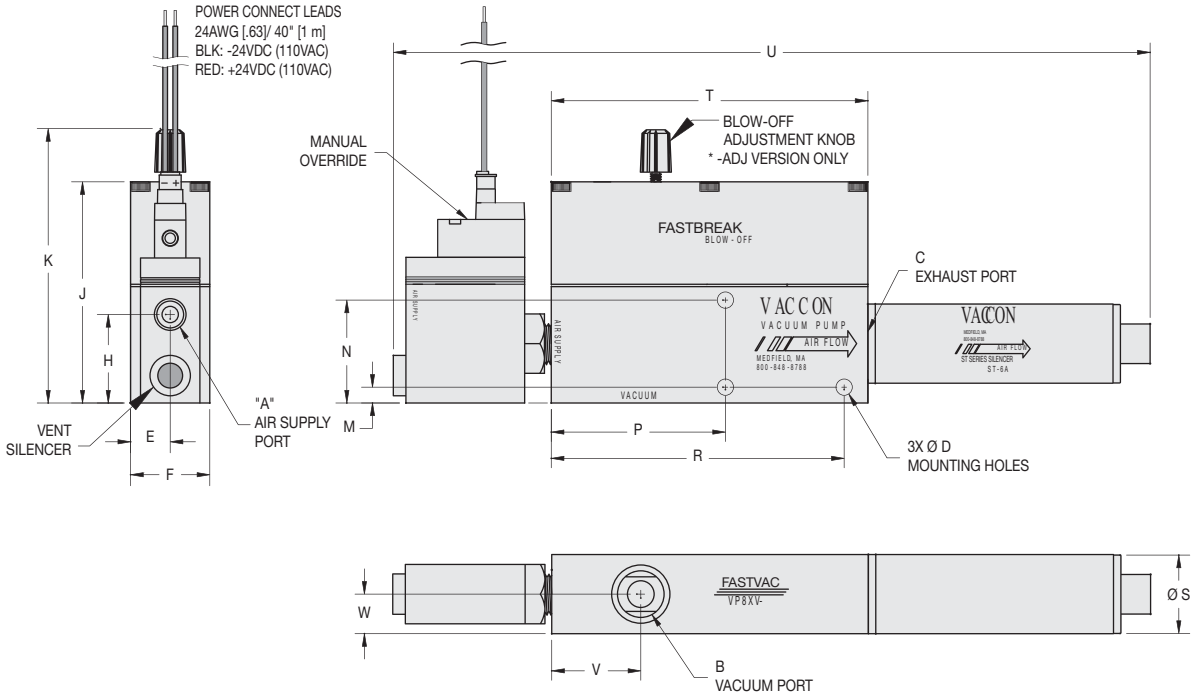
P/N	Silencer
	ST-6A Straight-Through (Standard)
STAA6	Hybrid
FA-51-3/8	High Flow

P/N	Adjustable Blow-off
	Not Adjustable (Standard)
ADJ	Adjustable Blow-off

P/N	Operating Pressure
	80 PSI [5.5 Bar] (Standard)
60	60 PSI [4.1 Bar]

For complete Performance Data, see page 254.

Standard Pump: VP8XV-200 (L, M, H) (-ADJ)



VP8XV-200H-ADJ with ST6A

VP8XV-200H with ST6A

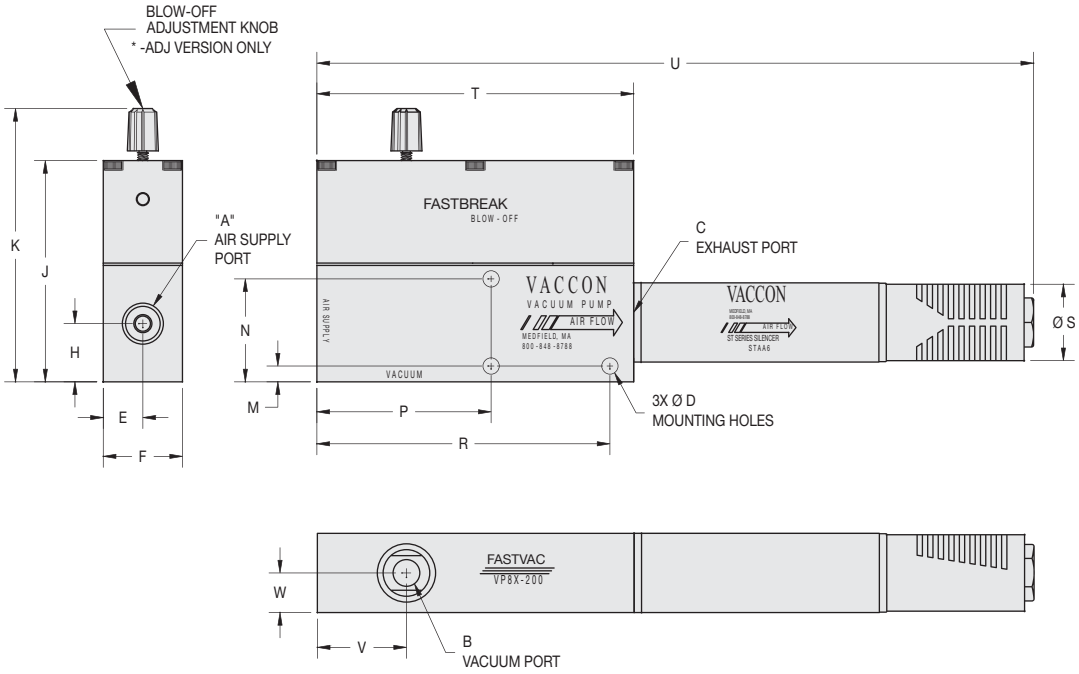
Specifications:

Weight 1 lb 3 oz [537g]
Noise Level 72 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
VP8XV w/ST6A	1/4 NPT F	3/8 NPT F	3/8 NPT F	0.21	0.50	1.00	1.12	2.79	3.45	N/A	0.20	1.30	2.20	3.70	1.00	4.00	9.56	1.13	0.50
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
I-VP8XV w/ST6A	G 1/4	G 3/8	G 3/8	5.2	12.7	25.4	28.4	71.0	87.7	N/A	5.1	33.0	55.9	94.0	25.4	101.6	242.8	28.6	12.7

*-ADJ Version Only

VP8XV-200 (L, M, H) (-ADJ) Pump - Optional Silencer: STAA6



VP8XV-200M-ADJ with STAA6

VP8XV-200M with STAA6

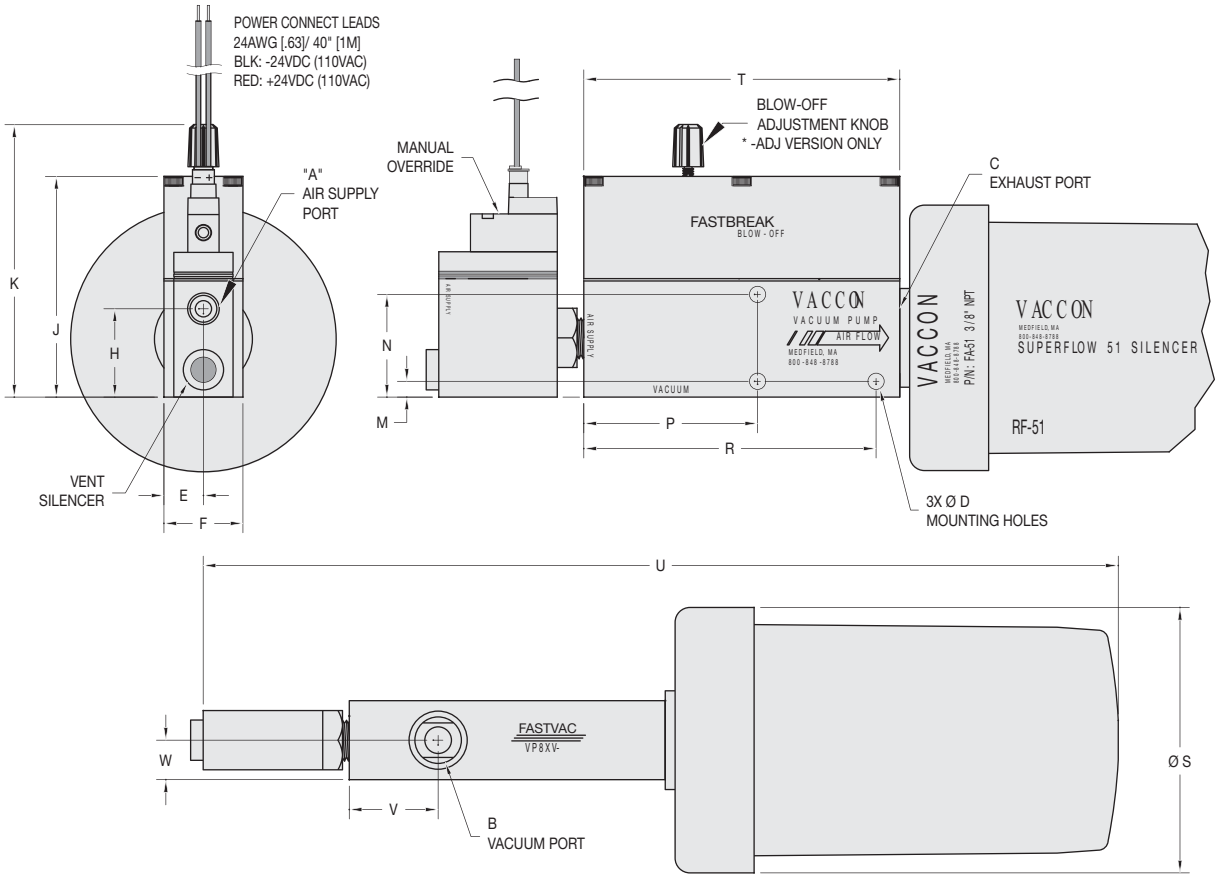
Specifications:

Weight 1 lb 4 oz [567g]
Noise Level 64 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
VP8XV w/STAA6	1/4 NPT F	3/8 NPT F	3/8 NPT F	0.21	0.50	1.00	1.12	2.79	3.45	N/A	0.20	1.30	2.20	3.70	0.965	4.00	10.886	1.13	0.50
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
I-VP8XV w/STAA6	G 1/4	G 3/8	G 3/8	5.2	12.7	25.4	28.4	71.0	87.7	N/A	5.1	33.0	55.9	94.0	25.4	101.6	276.5	28.6	12.7

*-ADJ Version Only

VP8XV-200 (L, M, H) (-ADJ) Pump - Optional Silencer: FA-51-3/8



VP8XV-200H-ADJ with FA-51-3/8 silencer

VP8XV-200H with FA-51-3/8 silencer

Specifications:

Weight 2 lb 5 oz [1kg]
Noise Level 73 dB

Model #	Imperial Dimensions (in.)																		
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
VP8XV w/FA-51-3/8	1/4 NPT F	3/8 NPT F	3/8 NPT F	0.21	0.50	1.00	1.12	2.79	3.45	N/A	0.20	1.30	2.20	3.70	3.36	4.00	11.58	1.13	0.50
Model #	**Metric Dimensions (mm)**																		
	A	B	C	D	E	F	H	J	K*	L	M	N	P	R	S	T	U	V	W
I-VP8XV w/FA-51-3/8	G 1/4	G 3/8	G 3/8	5.2	12.7	25.4	28.4	71.0	87.7	N/A	5.1	33.0	55.9	94.0	85.3	101.6	294.2	28.6	12.7

*-ADJ Version Only

Miniature Venturi Vacuum Pump with 3-way Integral Solenoid Valve and Silencer

Fastvac Mini Series: VP01-60

VP01-60H/24vDC-ST2

Ideal Applications:

Small part pick and place for applications requiring accurate part placement:

- **Automated assembly**
- **Robotics**
- **Material Handling**

Features/Benefits:

- **High productivity – Cycle rates up to 4800/min for fast part release**
- **Minimal air consumption – provides instantaneous vacuum as needed**
- **Reliable part detection – factory-installed miniature vacuum switches or sensors**
- **Fast Response – installs close to vacuum point – no delay due to long plumbing lines**
- **Easy installation – modular design speeds installation and minimizes assembly**
- **Reliable, trouble-free operation**
  - **~ No moving parts to wear**
  - **~ Straight-through design, non-clogging**
  - **~ No maintenance**
  - **~ No downtime**

Standard Pump:

VP01 Fastvac Mini Series pumps are solenoid-controlled miniature venturi vacuum pumps that generate vacuum only when needed, minimizing compressed air consumption.The integral solenoid valve provides instantaneous response for high speed assembly and pick and place applications.

Lightweight and compact, VP01 pumps are placed directly at the point of use to eliminate plumbing between components and to ensure high cycle rates for increased productivity. Extremely dirt tolerant, filters are not required.

Add a Vaccon ultra-miniature vacuum switch or sensor for a vacuum achieved/part present signal.

Performance Level Designations:

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Choice of valve voltage – 24vDC or 110vAC
- Factory-installed miniature vacuum switches or sensors for reliable part detection
- ST2 (straight-through) silencer that allows ingested debris to exit the pump without clogging
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional

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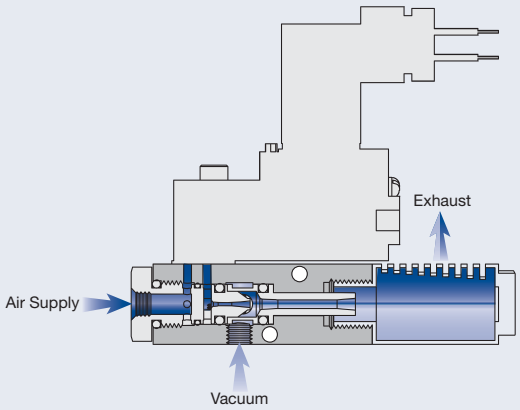
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Principles of Operation: VP01-60

To create vacuum, supply compressed air to a N.C. solenoid valve and energize the valve. Compressed air flows to the miniature venturi cartridge producing instant vacuum at the vacuum port. To release the part, de-energize the solenoid valve. The flow of air to the venturi stops instantly, and the rush of incoming atmospheric air breaks the vacuum.



VP01 Standard Pump Specifications:

Body Material:	Anodized Aluminum (For silencer material, see pages 233-236)
Cartridge Material:	Nylon, Buna-N (Other materials available, see page 7)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	0°~122° F [-18°~65°C]
Operating Pressure:	80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

3-Way Pilot Valve Specifications

Valve Type:	Integral 3-way solenoid, 24vDC or 110vAC, Normally closed
Valve Body Material:	Electroless nickel plated, 430 F Stainless Steel, Anodized Aluminum
Valve Seal Material:	Buna-N, Neoprene
Valve Operating Pressure:	Up to 100 PSI [7BAR]
Average Life:	100 million cycles or better
Power Consumption:	2.5 watts
Response Time:	6 milliseconds
Cycle Rate:	80 cycles/second
Electrical Connection:	9.4 mm, 2 pole + 1 ground, #43650 Din Connector with 22 AWG, 2' flying leads
Manual Override:	Yes, non-locking, spring return

VP01 Operating and Installation Instructions:

Operating Pressure:	80 PSI [5.5 BAR]. Set regulator to 80 PSI (or pre-designated pressure) when pump is operating
Supply Line:	1/4" O.D. [6mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF125LPM. See page 282.
Mounting Holes:	Mounting holes accept #4-40 [M3] screws

VP01 Fastvac Mini Series Configurations and Options:

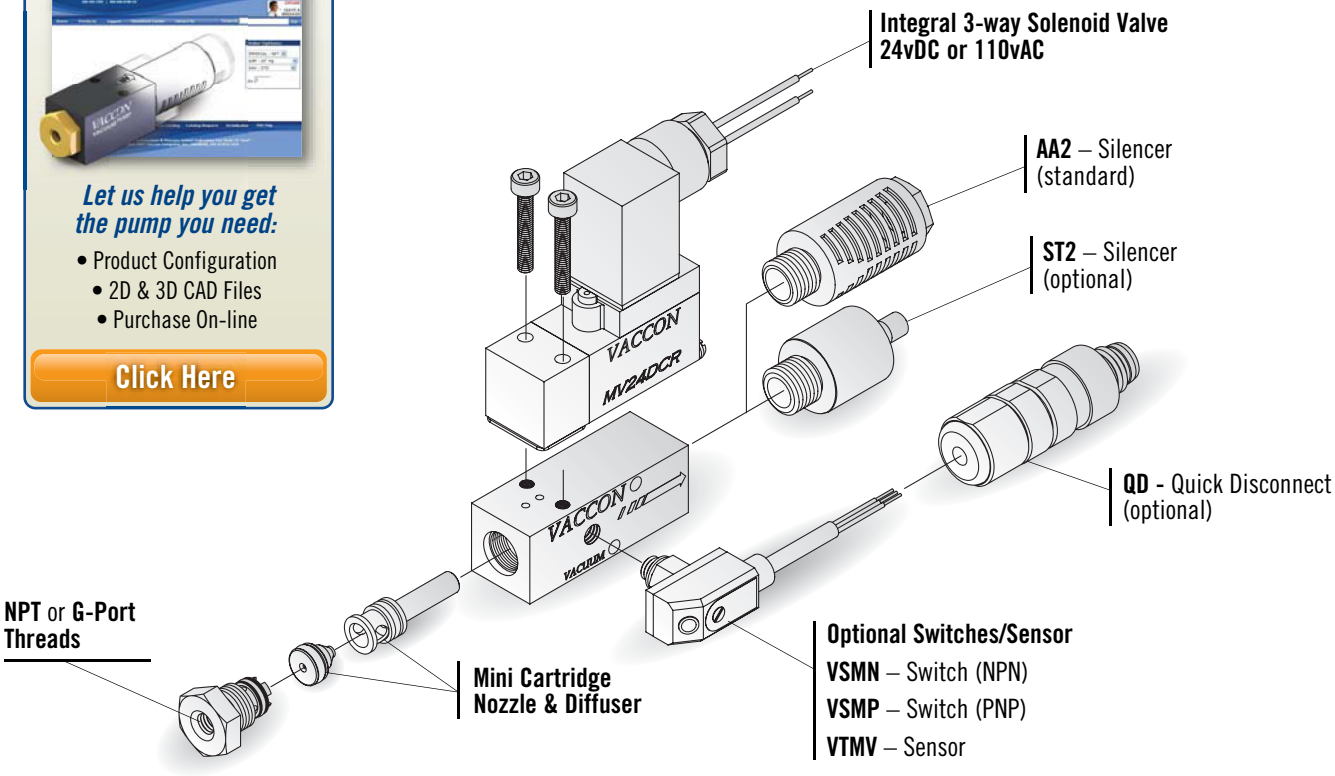
All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here



How to Specify:

VP01-60 - H - 24vDC - 60 - ST2 - VTMV

P/N	Thread
VP01-60	NPT
I-VP01-60	G-Port

P/N	Max. Vac Level
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Voltage
24vDC	24vDC
110vAC	110vAC

P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch w/Quick Disconnect
VSMP-QD	Switch w/Quick Disconnect
VTMV-QD	Sensor w/Quick Disconnect

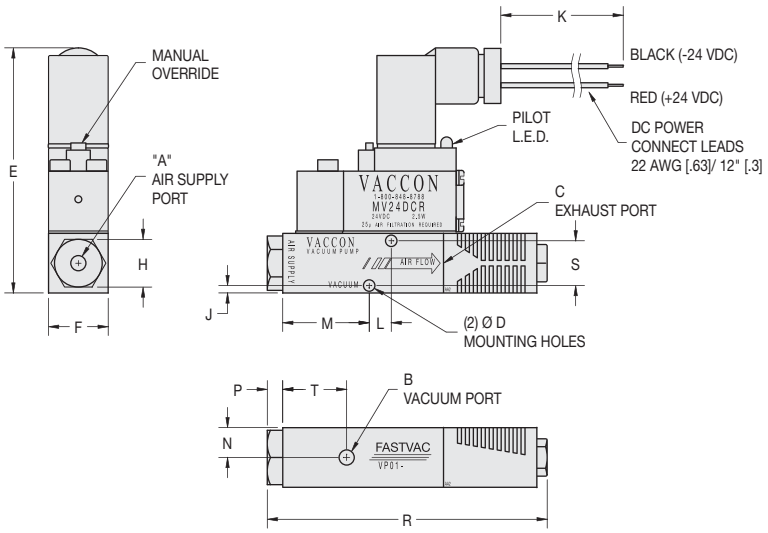
P/N	Silencer
	AA2 Closed End (Standard)
ST2	Straight-Through

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Std)
60	60 PSI [4.0 BAR]

For complete Performance Data, see page 148.

Standard Pump: VP01-60 (M or H)/24vDC or 110vAC

VP01-60H with AA2 silencer and 24vDC valve



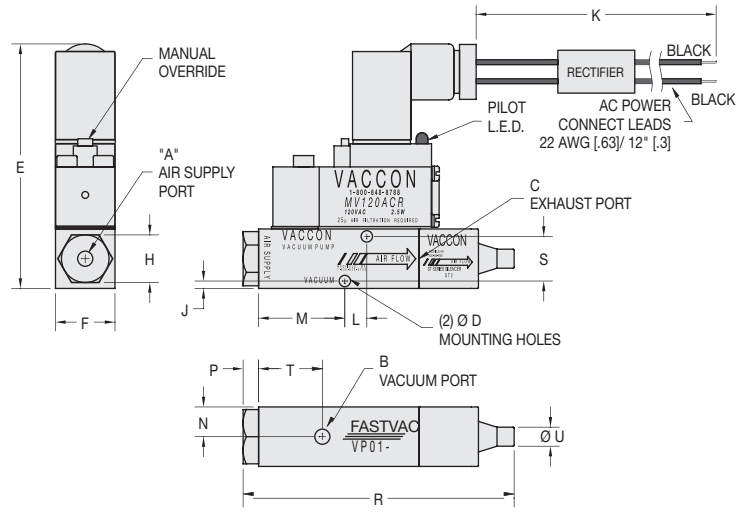
Specifications:

Weight: 3.7 oz [106g]
Noise Level: 58 dB

Model #	Imperial Dimensions (in.)															
VP01 w/AA2 & 24vDC	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T
	10-32 F	10-32 F	1/8 NPT F	0.12	2.57	0.63	0.50	0.08	12.0	0.23	0.91	0.31	0.16	2.93	0.47	0.67
Model #	**Metric Dimensions (mm)**															
I-VP01 w/AA2 & 24vDC	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T
	M5	M5	G 1/8	3.0	65.3	15.9	12.7	2.0	304.8	5.9	23.0	7.9	4.1	74.5	11.9	17.0

VP01-60 (M or H)/24vDC or 110vAC - Optional Silencer: ST2

VP01-60H with ST2 silencer and 110vAC valve



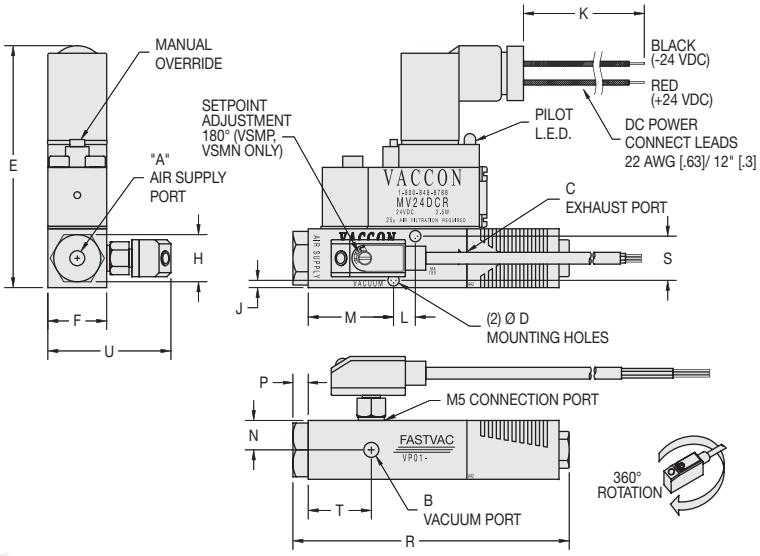
Specifications:

Weight: 3.8 oz [108g]
Noise Level: 70 dB

Model #	Imperial Dimensions (in.)																
VP01 w/ST2 & 110vAC	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U
	10-32 F	10-32 F	1/8 NPT F	0.12	2.57	0.63	0.50	0.08	12.0	0.23	0.91	0.31	0.16	2.85	0.47	0.67	0.20
Model #	**Metric Dimensions (mm)**																
I-VP01 w/ST2 &110vAC	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U
	M5	M5	G 1/8	3.0	65.3	15.9	12.7	2.0	304.8	5.9	23.0	7.9	4.1	72.4	11.9	17.0	5.1

VP01-60 (M or H)/24vDC or 110vAC – Optional Ultra Mini Switch/Sensor

VP01-60H/24vDC with VSMP switch



Specifications:

Weight: 4.6 oz [133g]
Noise Level: 58 dB

Model #	Imperial Dimensions (in.)																
VP01 w/24vDC Switch or Sensor	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U
	10-32 F	10-32 F	1/8 NPT F	0.12	2.57	0.63	0.50	0.08	12.0	0.23	0.91	0.31	0.16	2.93	0.47	0.67	1.31
Model #	**Metric Dimensions (mm)**																
I-VP01 w/24vDC Switch or Sensor	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U
	M5	M5	G 1/8	3.0	65.3	15.9	12.7	2.0	304.8	5.9	23.0	7.9	4.1	74.5	11.9	17.0	33.2

Mid Series Venturi Vacuum Pump with 3-way Integral Solenoid Valve and Silencer

Fastvac Mid Series: VP30

VP30-100H/24vDC with optional ST4 silencer and VG-150 vacuum gauge

Ideal Applications:

Pick and place for applications requiring accurate part placement:

- **Automated assembly**
- **Robotics**
- **Material Handling**

Features/Benefits:

- **High productivity – fast part release with high cycle rates up to 2700/min**
- **Minimal air consumption – provides instantaneous vacuum as needed**
- **Reliable part detection – factory-installed miniature vacuum switches or sensors**
- **Fast Response – installs close to vacuum point – no delay due to long plumbing lines**
- **Easy installation – modular design speeds installation and minimizes assembly**
- **Reliable, trouble-free operation**
  - **~ No moving parts to wear**
  - **~ Straight-through design, non-clogging**
  - **~ No maintenance**
  - **~ No downtime**

Standard Pump:

VP30 Fastvac Mid Series pumps are solenoid-controlled venturi vacuum pumps that generate vacuum only when needed, minimizing compressed air consumption. The integral solenoid valve provides instantaneous response for high speed assembly and pick and place applications.

Design flexibility is further increased with our interchangeable venturi cartridge system. Choosing from 11 different venturi cartridges, designers optimize performance to meet their needs.

Lightweight and compact, VP30 pumps are placed at the point of use to eliminate plumbing between components and to ensure high cycle rates for increased productivity. Extremely dirt tolerant, filters are not required. Push-to-connect air supply and vacuum lines save space and assembly time.

Add a Vaccon ultra-miniature vacuum switch or sensor for a vacuum achieved/part present signal.

Product Update 1: The VP31 Series has been discontinued. The VP30 Series is an equivalent pump.

Performance Level Designations:

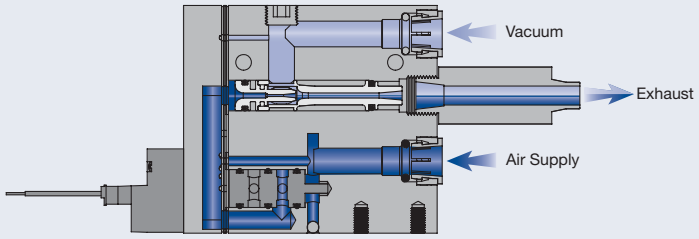
"**L**" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications
"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications
"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Interchangeable venturi cartridges – 11 different performance levels
- Choice of valve voltage – 24vDC or 110vAC
- Factory-installed miniature vacuum switches or sensors for reliable part detection
- AA4 silencer and STAA4 hybrid silencer for ultra-quiet operation
- Push-to-connect fittings, threads optional, contact factory
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional.

Principles of Operation: VP30

To create vacuum, supply compressed air to a N.C. solenoid valve and energize the valve. Compressed air flows to the miniature venturi cartridge producing instant vacuum at the vacuum port. To release the part, de-energize the solenoid valve. The flow of air to the venturi stops instantly, and the rush of incoming atmospheric air breaks the vacuum.



Shown with solenoid valve energized.

VP30 Standard Pump Specifications:

Body Material:	Anodized Aluminum, Buna-N, Brass, Acetal (For silencer material, see pages 233-237)
Cartridge Material:	Nylon, Buna-N (Other materials available, see page 7)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	-23°~122° F [-5°~50°C]
Operating Pressure:	80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

3-Way Pilot Valve Specifications

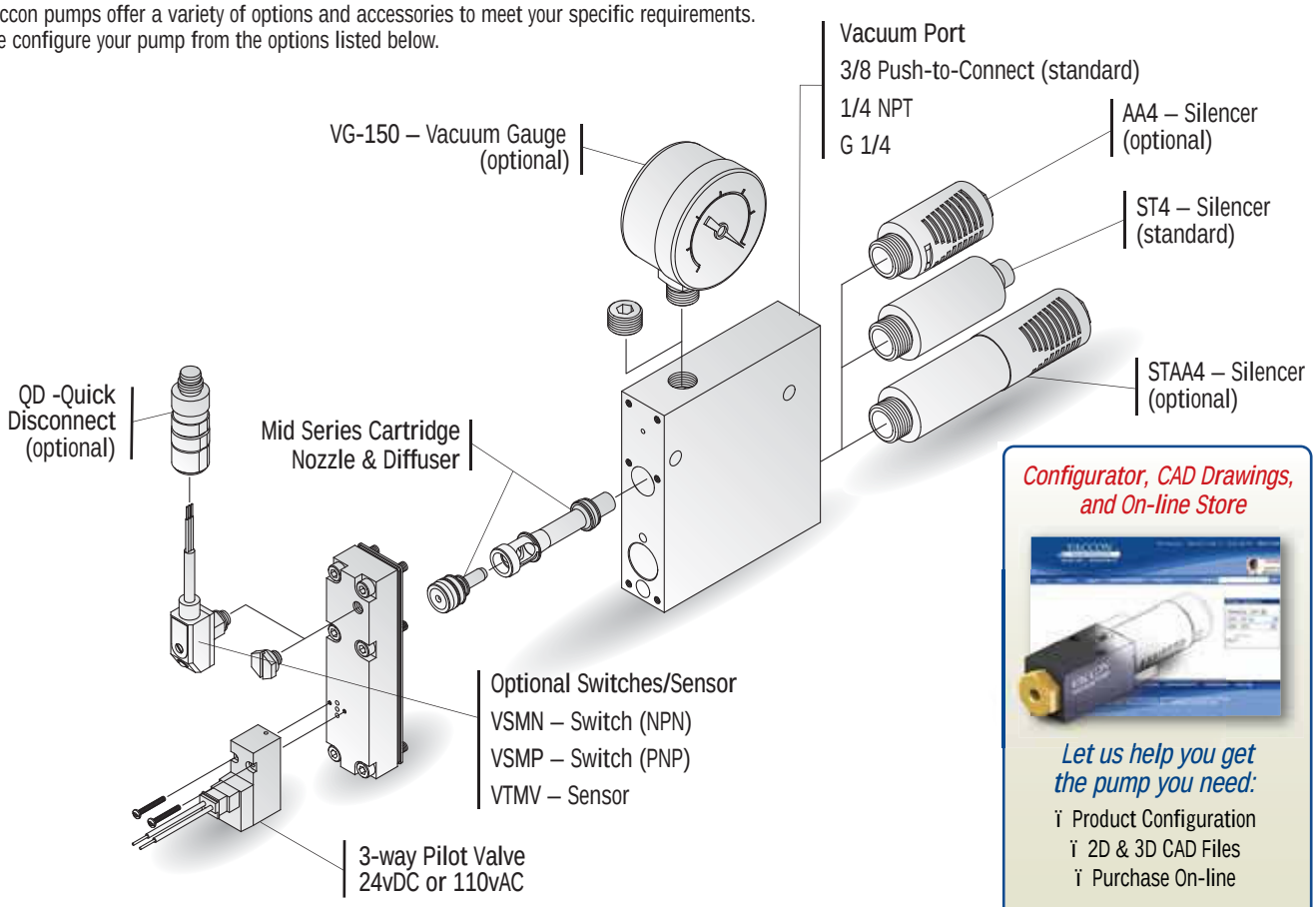
Valve Type:	Integral 3-way solenoid, 24vDC or 110vAC, Normally closed
Valve Body Material:	Copper, Nylon, Stainless Steel
Valve Seal Material:	Buna-N
Valve Operating Pressure:	0 to 100 PSI [0 to 7 BAR]
Average Life:	50 million cycles
Power Consumption:	24vDC: 1.3 watts, 110vAC: 1.0 watts
Response Time:	8 milliseconds
Cycle Rate:	45 cycles per second
Electrical Connection:	2 pole plug-in cable with 24 AWG, 3' [1M] flying leads
Manual Override:	Yes, non-locking, spring return

VP30 Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	3/8" O.D. [10mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF250F. See page 282.	
Mounting Holes:	Mounting holes accept 10-32 [M5] screws	

VP30 Fastvac Mid Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.



How to Specify:

VP30 - 60 H - 24vDC - 60 - ___ - VTMV - 0

P/N	Thread
VP30	NPT
I-VP30	G-Port

P/N	Max. Flow Level
-60	
-90	
-100	
-150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Voltage
24vDC	24vDC
110vAC	110vAC

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Std)
60	60 PSI [4.0 BAR]

P/N	Vacuum Port
0	3/8" PTC (Standard)
1	1/4" NPT
2	G 1/4"

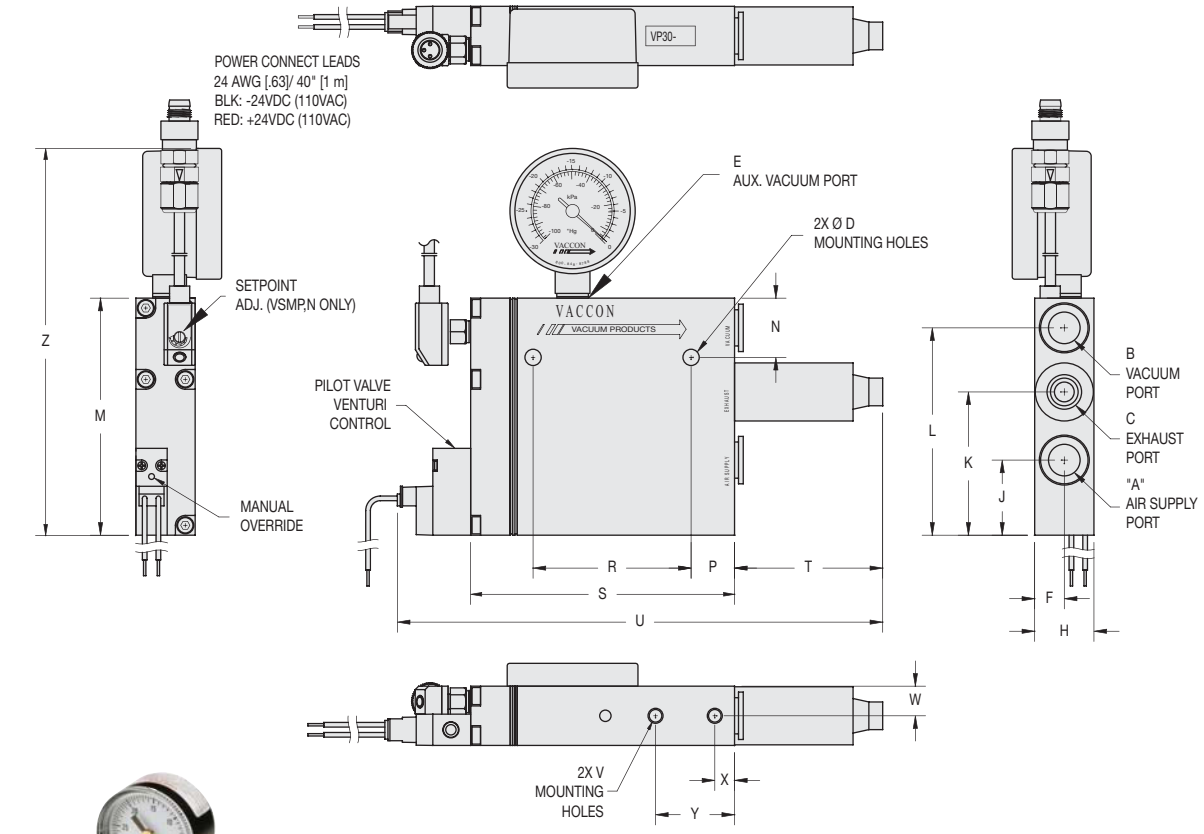
P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch w/Quick Disconnect
VSMP-QD	Switch w/Quick Disconnect
VTMV-QD	Sensor w/Quick Disconnect

P/N	Silencers
	ST4 – Straight-Through (Std)
AA4	Closed End
STAA4	Hybrid

P/N	Vacuum Gauge
VG-150	Vaccon does not recommend shipping gauges attached to pumps. Please specify as a separate line item.

For complete Performance Data, see page 150.

VP30- (60, 90, 100, 150) (L, M, H)/24vDC or 110vAC: Optional Vacuum Gauge VG-150, Vacuum Sensor/Switch and Quick Disconnect - QD



VP30-90H/24vDC with optional VG-150 vacuum gauge and VSMP switch

Specifications:

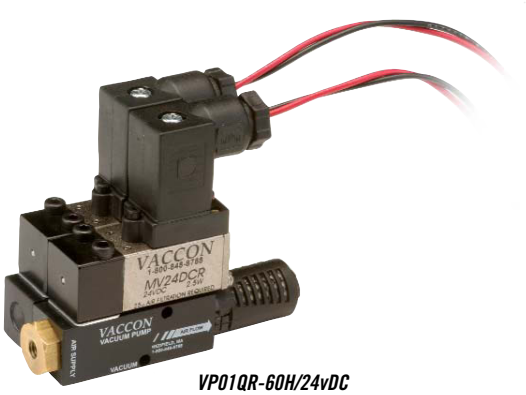
Weight: 11 oz [312g]
Noise Level: 66 dB

Model #	Imperial Dimensions (in.)																					
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
VP30 w/ VG-150, VSMP-QD	3/8 PTC*	3/8 PTC*	1/4 NPT F	0.21	1/8 NPT F	.038	0.75	0.95	1.81	2.62	3.00	0.75	0.55	2.00	3.34	1.88	6.14	10-32	0.38	0.25	1.00	4.90
Model #	**Metric Dimensions (mm)**																					
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
I-VP30 w/ VG-150, VSMP-QD	10mm	10mm	G 1/4	5.2	G 1/8	9.5	19.1	24.1	46.1	66.6	76.2	19.1	14.0	50.8	84.8	47.6	156.0	M5	9.5	6.4	25.4	124.5

**PTC – Push-to-connect. Consult factory for NPT threaded connections.*

Miniature Venturi Vacuum Pump with Solenoid Operated Vacuum and Blow-off

Fastvac Mini Series: VP01QR-60



VP01QR-60H/24vDC

Ideal Applications:

Small part pick and place for applications requiring accurate part placement:

- **Automated assembly**
- **Robotics**
- **Material handling**

Features/Benefits:

- **Precise control – individual electrical connections let you control the vacuum and the blow-off duration time**
- **Fast response – no delay due to long plumbing lines; installs close to vacuum point**
- **Instantaneous vacuum as needed – minimal air consumption**
- **Productivity – fast part release with high cycle rates up to 4800/min**
- **Accurate part positioning from positive vacuum and rapid blow-off**
- **Easy installation – modular design speeds installation and minimizes assembly**
- **Reliable, trouble-free operation**
  - **~ No moving parts to wear**
  - **~ No maintenance**
  - **~ No downtime**

Standard Pump:

VP01QR Fastvac Mini Series are solenoid-controlled miniature venturi vacuum pumps that feature a second solenoid to control blow-off air for rapid part release.

The integral suck and blow circuit design provides instantaneous response for high speed assembly and pick and place applications. The blow-off is at line pressure, and is internally plumbed so that only one air and vacuum line is required.

The compact, lightweight, dirt tolerant pump can be placed directly at the point of use. No filters are required.

Add a Vaccon ultra-miniature vacuum switch or sensor for a vacuum achieved/part present signal.

Performance Level Designations:

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Choice of valve voltage – 24vDC or 110vAC
- Factory-installed miniature vacuum switches or sensors for reliable part detection
- ST2 (straight-through) silencer that allows ingested debris to exit the pump without clogging
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional.

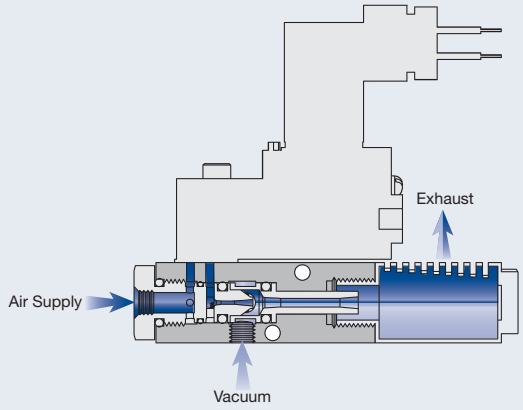
Eliminate the Guesswork: Contact Us!

Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

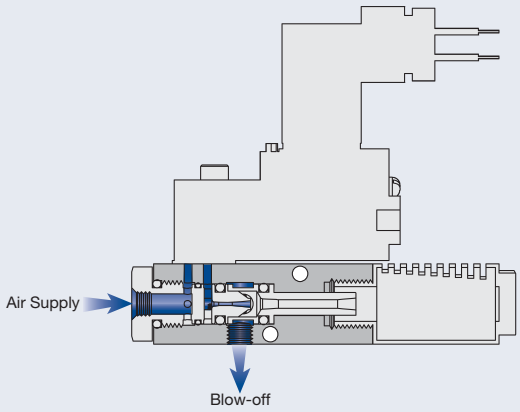
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Principles of Operation: VP01QR-60



Compressed air is supplied to both N.C. solenoid valves simultaneously. To create vacuum, energize the first solenoid valve to allow the compressed air to flow to the miniature venturi cartridge resulting in instant vacuum at the vacuum port.



To release the part, de-energize the vacuum solenoid while energizing the blow-off solenoid. Because the blow-off air is at line pressure, a very powerful blow-off will be created.

VP01QR Standard Pump Specifications:

Body Material: Anodized Aluminum (For silencer material, see pages 233-236)
Cartridge Material: Nylon, Buna-N (Other materials available, see page 7)
Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature: 0°~122° F [-18°~65°C]
Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

3-Way Mini Valve Specifications

Valve Type: Integral 3-way solenoid, 24vDC or 110vAC, Normally closed
Valve Body Material: Electroless nickel plated, 430 F Stainless Steel, Anodized Aluminum
Valve Seal Material: Buna-N, Neoprene
Valve Operating Pressure: Up to 100 PSI [7 BAR]
Average Life: 100 million cycles
Power Consumption: 2.5 watts
Response Time: 6 milliseconds
Cycle Rate: 80 cycles/second
Electrical Connection: 9.4 mm, 2 pole + 1 ground, #43650 Din Connector with 22 AWG, 2' flying leads
Manual Override: Yes, non-locking, spring return

VP01QR Operating and Installation Instructions:

Operating Pressure: 80 PSI [5.5 BAR]. Set regulator to 80 PSI (or pre-designated pressure) when pump is operating
Supply Line: 1/4" O.D. [6mm] tube recommended
Vacuum Line: 1/4" O.D. [6mm] tube recommended
Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF125LPM. See page 282.
Mounting Holes: Mounting holes accept #4-40 [M3] screws

VP01QR Mini Series Configurations and Options:

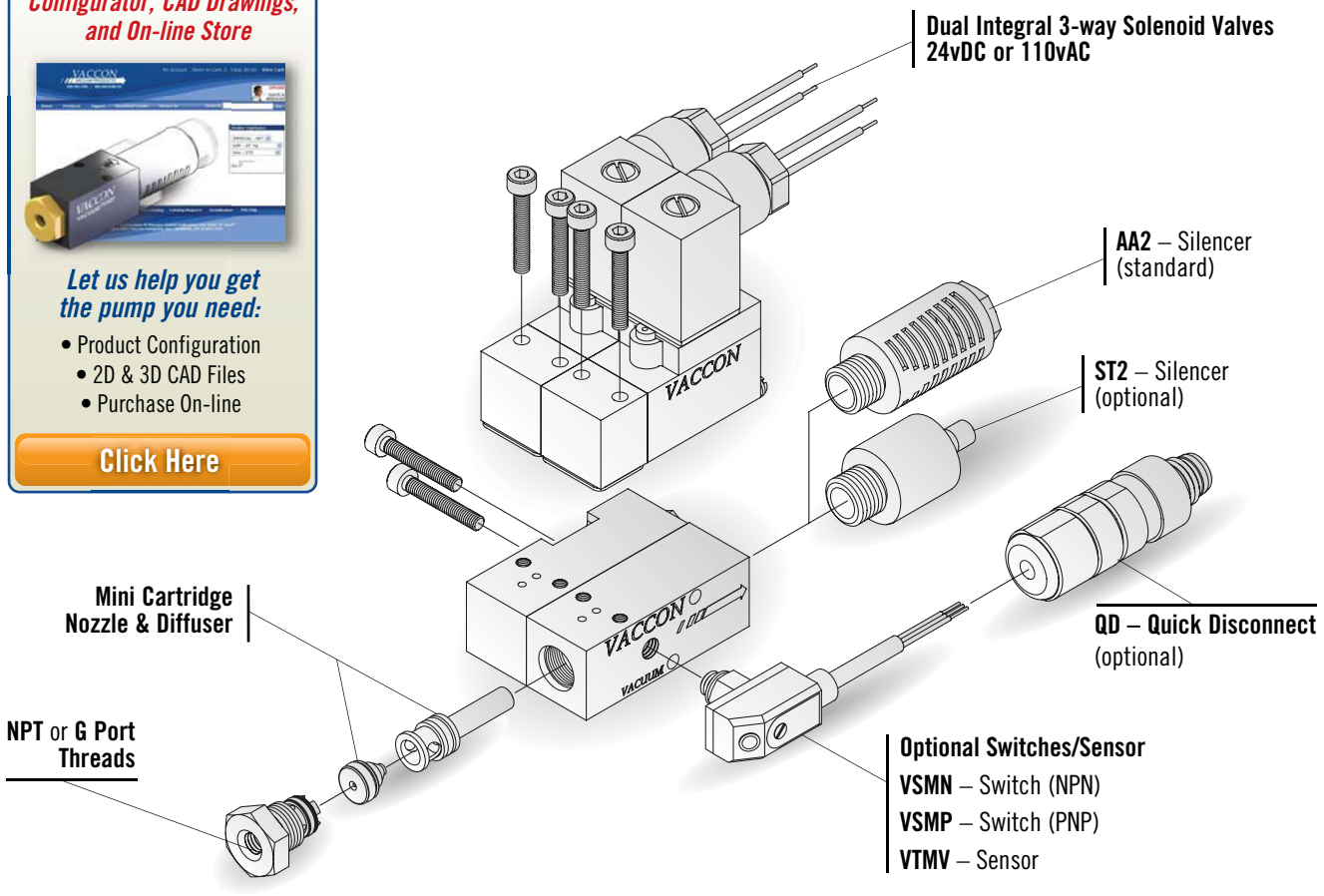
All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.

Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here



How to Specify:

VP01QR-60 H - 110vAC - 60 - ST2 - VSMP

P/N	Thread
VP01QR-60	NPT
I-VP01QR-60	G-Port

P/N	Max. Vac Level
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Voltage
24vDC	24vDC
110vAC	110vAC

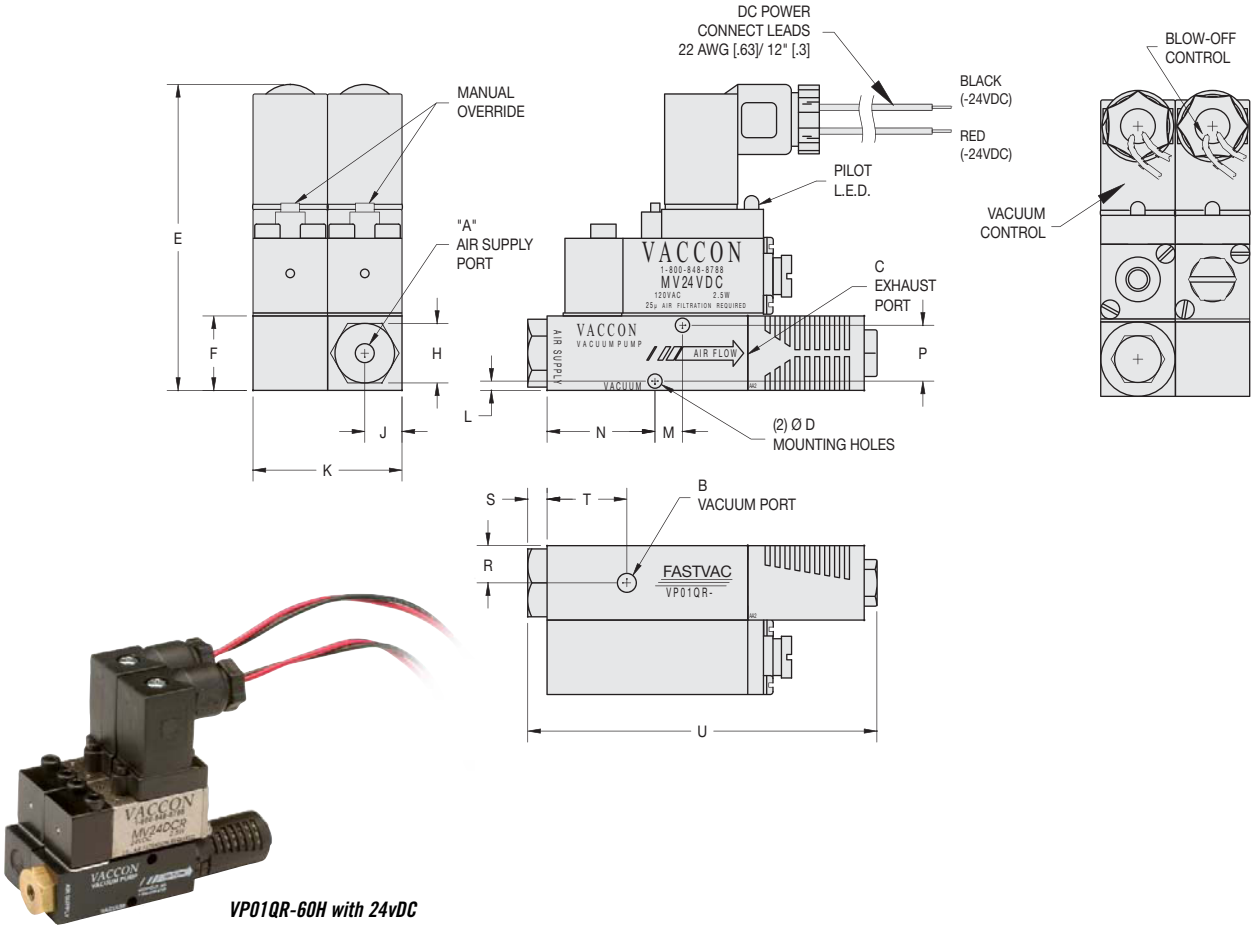
P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch w/Quick Disconnect
VSMP-QD	Switch w/Quick Disconnect
VTMV-QD	Sensor w/Quick Disconnect

P/N	Silencer
	AA2 – Closed End (Standard)
ST2	Straight Through

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Std)
60	60 PSI [4.0 BAR]

For complete Performance Data, see page 150.

Standard Pump: VP01QR-60 (M or H)/(24vDC or 110vAC)



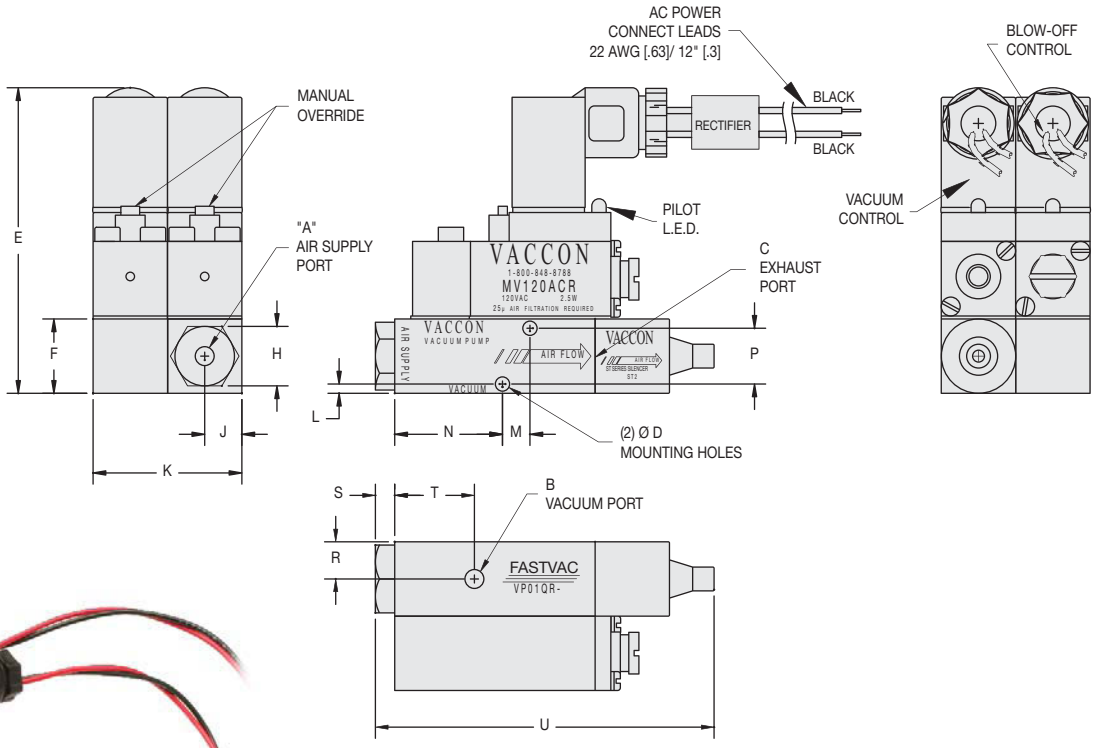
VP01QR-60H with 24vDC

Specifications:

Weight: 7.5 oz [212g]
Noise Level: 58 dB

Model #	Imperial Dimensions (in.)																
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U
VP01QR w/AA2	10-32 F	10-32 F	1/8 NPT	0.12	2.57	0.63	0.50	0.31	1.25	0.08	0.23	0.91	0.47	0.31	0.16	0.67	2.93
Model #	**Metric Dimensions (mm)**																
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U
I-VP01QR w/AA2	M5	M5	G 1/8	3.05	65.25	15.88	12.70	7.94	31.78	1.98	5.87	23.01	11.91	7.9	4.13	17.02	74.52

Standard Pump: VP01QR-60 (M or H)/(24vDC or 110vAC): Optional Silencer: ST2



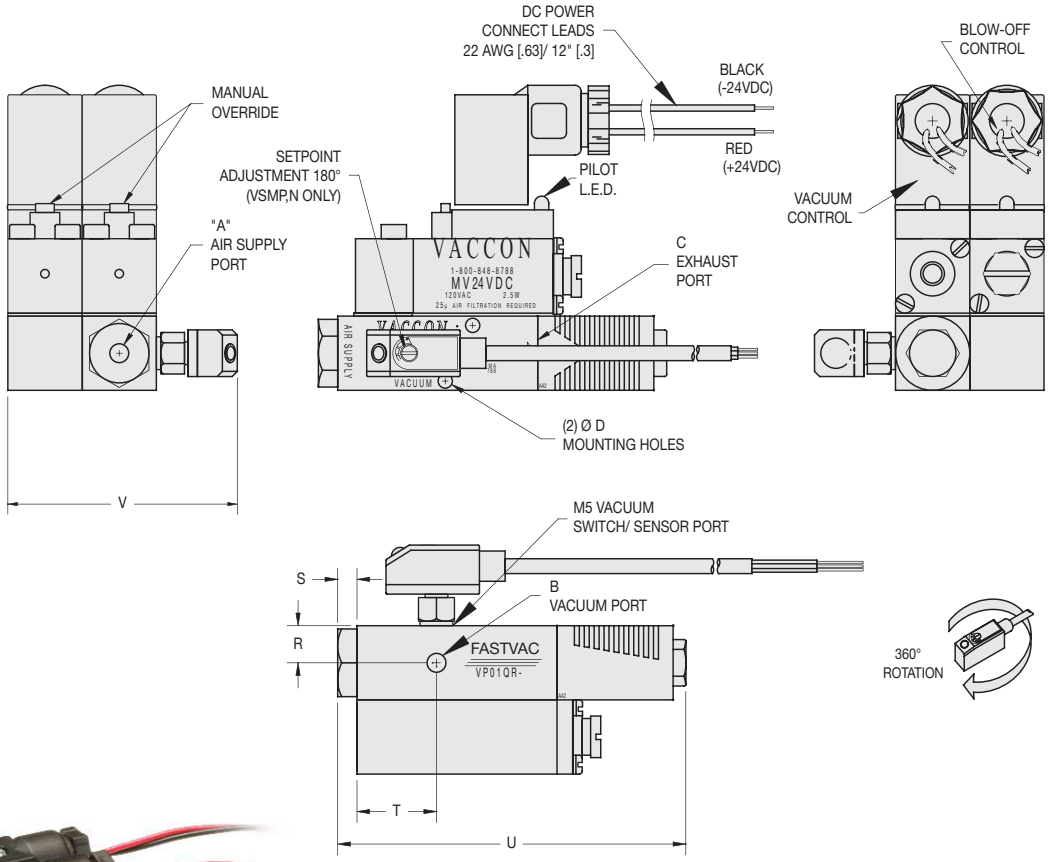
VP01QR-60H/110vAC-ST2

Specifications:

Weight: 7.6 oz [216g]
Noise Level: 68 dB

Model #	Imperial Dimensions (in.)																
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U
VP01QR w/ST2	10-32 F	10-32 F	1/8 NPT	0.12	2.57	0.63	0.50	0.31	1.25	0.08	0.23	0.91	0.47	0.31	0.16	0.67	2.85
Model #	**Metric Dimensions (mm)**																
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U
I-VP01QR w/ST2	M5	M5	G 1/8	3.05	65.25	15.88	12.70	7.94	31.78	1.98	5.87	23.01	11.91	7.9	4.13	17.02	72.33

Standard Pump: VP01QR-60 (M or H)/(24vDC or 110vAC): Optional Ultra Mini Switch/Sensor



VP01QR-60H with 24vDC and VSMP switch

Specifications:

Weight: 9.4 oz [266g]
Noise Level: 58 dB

Model #	Imperial Dimensions (in.)																
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U
VP01QR w/ Switch or Sensor	10-32 F	10-32 F	1/8 NPT	0.12	2.57	0.63	0.50	0.31	1.25	0.08	0.23	0.91	0.47	0.31	0.16	0.67	2.93
Model #	**Metric Dimensions (mm)**																
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U
I-VP01QR w/ Switch or Sensor	M5	M5	G 1/8	3.05	65.25	15.88	12.70	7.94	31.78	1.98	5.87	23.01	11.91	7.9	4.13	17.02	74.52

Mid Series Venturi Vacuum Pump with Solenoid Operated Vacuum and Blow-off

Fastvac Mid Series: VP30QR

VP30QR-60M/24vDC with VG-150 vacuum gauge and VSMP-QD switch with quick disconnect

Ideal Applications:

Pick and place for applications requiring accurate part placement:

- **Automated assembly**
- **Robotics**
- **Material handling**

Features/Benefits:

- **Precise control – individual electrical connections let you control the vacuum and the blow-off duration time.**
- **Instantaneous vacuum as needed – minimal air consumption**
- **High Productivity – fast part release with cycle rates up to 2700/min**
- **Accurate part positioning from positive vacuum and rapid blow-off**
- **Easy installation – modular design speeds installation and minimizes assembly**
- **Fast response – no delay due to long plumbing lines; installs close to vacuum point**
- **Reliable, trouble-free operation**
  - **~ No moving parts to wear**
  - **~ No maintenance**
  - **~ No downtime**

Standard Pump:

VP30QR Fastvac Mid Series are solenoid-controlled venturi vacuum pumps that feature a second solenoid to control blow-off air for rapid part release. VP30QR pumps generate vacuum only when needed, minimizing compressed air consumption.

Design flexibility is further increased with our interchangeable venturi cartridge system. Choosing from 11 different venturi cartridges, designers optimize performance to meet their needs.

Lightweight and compact, VP30 pumps are placed at the point of use to eliminate plumbing between components and to ensure high cycle rates for increased productivity. Extremely dirt tolerant, filters are not required. Push-to-connect air supply and vacuum lines save space and assembly time.

Performance Level Designations:

"**L**" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Interchangeable venturi cartridges – 11 different performance levels
- Choice of valve voltage – 24vDC or 110vAC
- Factory-installed miniature vacuum switches or sensors for reliable part detection
- ST4 (straight-through) silencer that allows ingested debris to pass through pump without clogging or STAA4 hybrid silencer for ultra quiet operation
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional.

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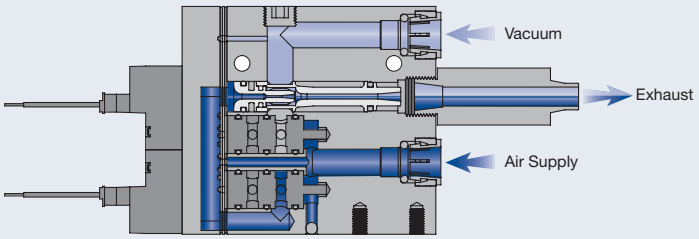
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

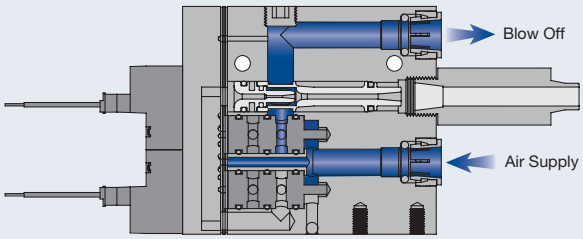
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Principles of Operation: VP30QR



Compressed air is supplied to both N.C. solenoid valves simultaneously. To create vacuum, energize the first solenoid valve to allow the compressed air to flow to the venturi cartridge resulting in instant vacuum at the vacuum port.



To release the part, de-energize the vacuum solenoid while energizing the blow-off solenoid. Because the blow-off air is at line pressure a very powerful blow-off will be created.

VP30QR Standard Pump Specifications:

Body Material:	Anodized Aluminum, Buna-N, Brass, Acetal (For silencer material, see pages 233-237)
Cartridge Material:	Nylon, Buna-N (Other materials available, see page 7)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	-23°~122° F [-5°~50°C]
Operating Pressure:	80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

3-Way Pilot Valve Specifications

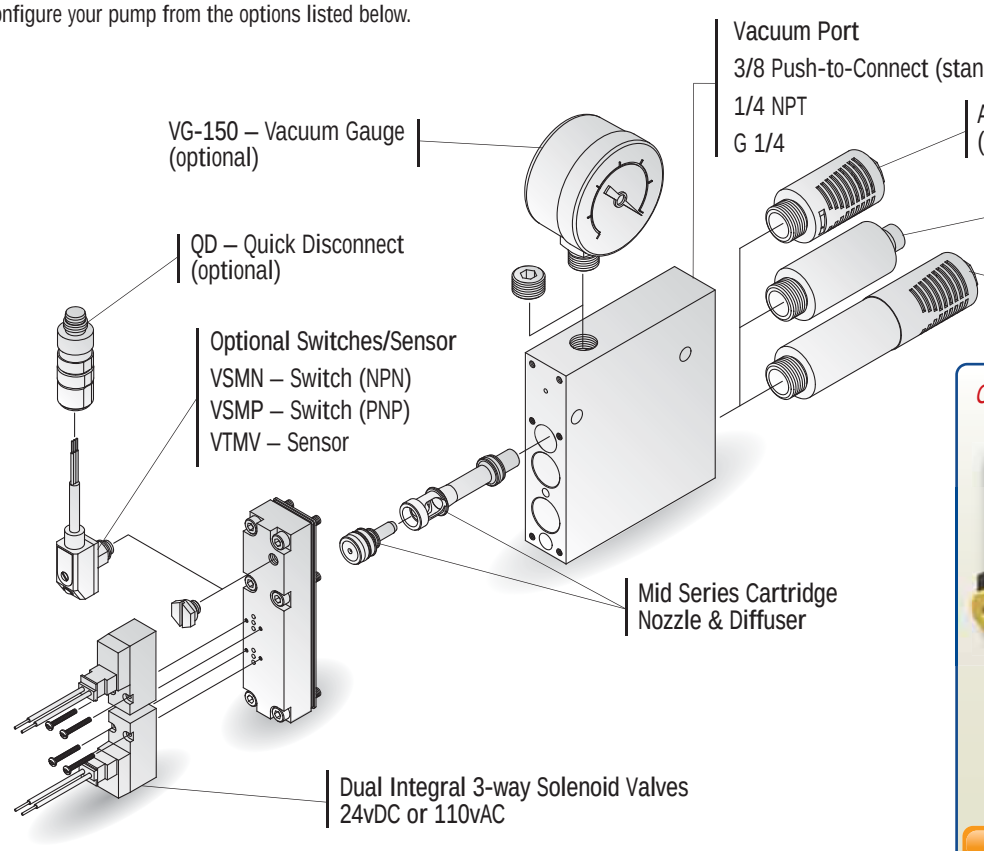
Valve Type:	Integral 3-way solenoid, 24vDC or 110vAC, Normally closed
Valve Body Material:	Copper, Nylon, Stainless Steel
Valve Seal Material:	Buna-N
Valve Operating Pressure:	0 to 100 PSI [0 to 7 BAR]
Average Life:	50 million cycles or better
Power Consumption:	24vDC: 1.3 watts, 110vAC: 1.0 watts
Response Time:	8 milliseconds
Cycle Rate:	45 cycles per second
Electrical Connection:	2 pole plug-in cable with 24 AWG, 3' [1M] flying leads
Manual Override:	Yes, non-locking, spring return

VP30QR Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	3/8" O.D. [10mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF250F. See page 282.	
Mounting Holes:	Mounting holes accept 10-32 [M5] screws	

VP30QR Mid Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements.
Please configure your pump from the options listed below.



Configurator, CAD Drawings, and On-line Store

Let us help you get the pump you need:

- Product Configuration
- 2D & 3D CAD Files
- Purchase On-line

Click Here

How to Specify:

VP30QR - 60 H - 110vAC - 60 - [ ] - VSMP - 0

P/N	Thread
VP30QR	NPT
I-VP30QR	G-Port

P/N	Max. Flow Level
-60	
-90	
-100	
-150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Voltage
24vDC	24vDC
110vAC	110vAC

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Std)
60	60 PSI [4.0 BAR]

P/N	Vacuum Port
0	3/8" PTC (Standard)
1	1/4" NPT
2	G 1/4"

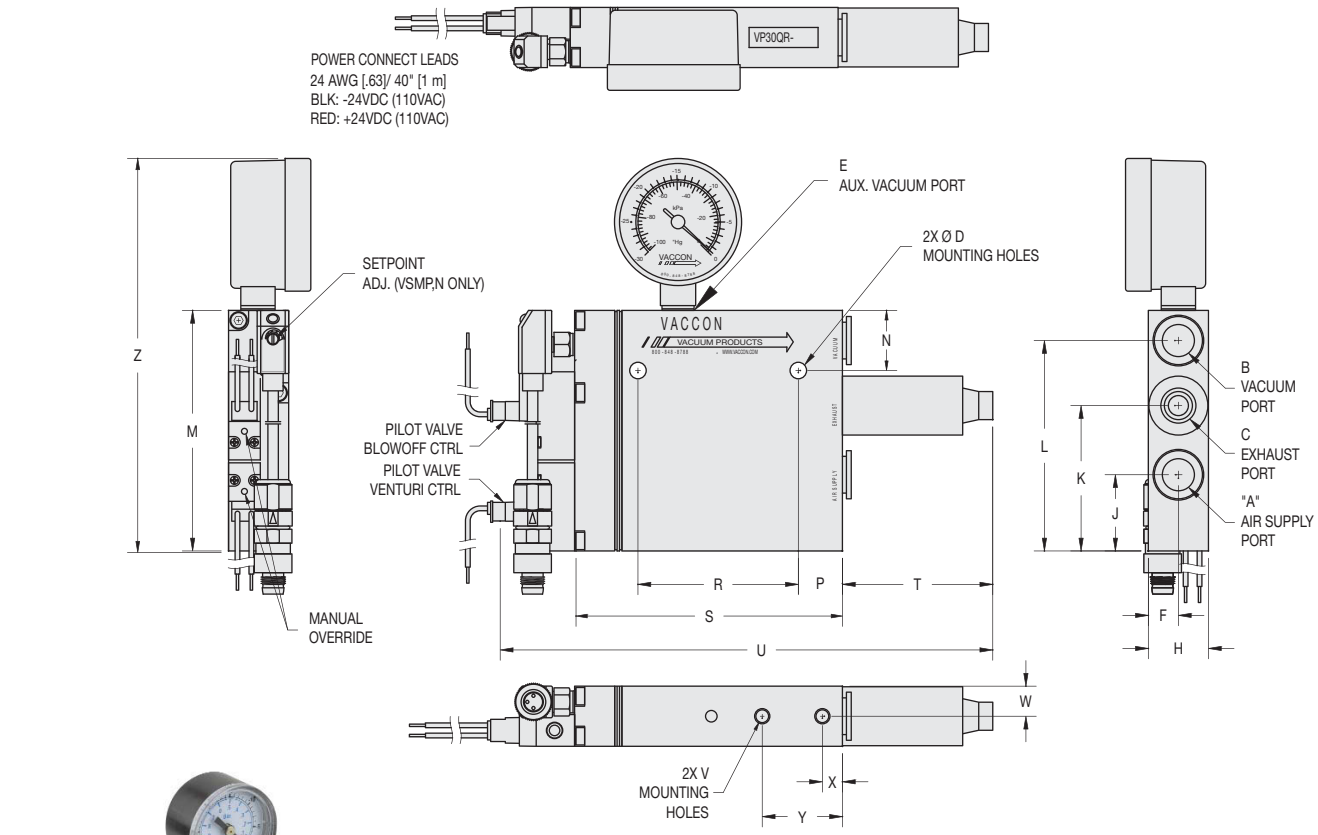
P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor – 0-5VDC Output
VSMN-QD	Switch w/Quick Disconnect
VSMP-QD	Switch w/Quick Disconnect
VTMV-QD	Sensor w/Quick Disconnect

P/N	Silencer
	ST4 - Straight-Through (Std)
AA4	Closed-End
STAA4	Hybrid

P/N	Vacuum Gauge
VG-150	Vaccon does not recommend shipping gauges attached to pumps. Please specify as a separate line item.

For complete Performance Data, see page 150.

VP30QR-(60, 90, 100, 150) (L, M, H)/(24vDC or 110vAC): Optional Vacuum Gauge VG-150, Ultra Mini Switches/Sensor and Quick Disconnect -QD



VP30QR-100H/110vAC-VSMP-QD switch with quick disconnect and VG-150 vacuum gauge

For optional silencer dimensions, see pages 233-237.

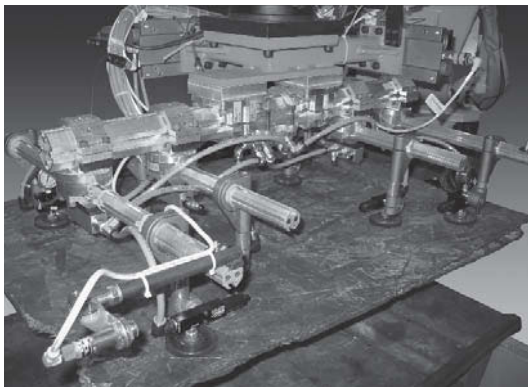
Specifications:

Weight: 11.5 oz [328g]
Noise Level: 66 dB

Model #	Imperial Dimensions (in.)																						
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
VP30QR w/VG-150, VSMP-QD	3/8 PTC	3/8 PTC	1/4 NPT F	0.21	1/8 NPT F	0.38	0.75	0.95	1.81	2.62	3.00	0.75	0.55	2.00	3.34	1.88	6.14	10-32	0.38	0.25	1.00	4.90
Model #	**Metric Dimensions (mm)**																						
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	W	X	Y	Z
I- VP30QR w/VG-150, VSMP-QD	10mm	10mm	G 1/4	5.2	G 1/8	9.5	19.1	24.1	46.1	66.6	76.2	19.1	14.0	50.8	84.8	47.6	156.0	M5	9.5	6.4	25.4	124.5

Venturi Vacuum Pump with Apple Core Style Mount

VP10 and VP1X Series Mid Size Pumps with Interchangeable Cartridges and Optional Pneumatic Blow-off



End-of-Arm Tool with multiple VP10-100M-AC vacuum pump/apple core assemblies for picking and placing worn plywood slipsheets for palletizing operation.

Ideal Applications:

- End-of-Arm-Tooling
- Press load & unload automotive automation
- Robotic assembly
- Pick and place
- Sheet feeding
- Stamping press transfer

Features/Benefits

- Positioning flexilibity – safe handling of curved parts and surfaces
- Performance Versatility – interchangeable Venturi Cartridge Design
- Quiet Operation – straight-through, non-clogging silencers
- Easy Installation – one air line connection
- High Production – fast part release blow-off (up to 900 cycles/min)
- Compact – no external plumbing required for blow-off
- Efficient – minimal compressed air consumption

"Apple Core" pumps combine the features of the VP10 or VP1X Series pumps with the ease and position flexibility of the apple core mounting system. As an integral part of the pump, the apple core mount and clamp creates a swivel arm assembly that allows the pump/cup to rotate 360 degrees in 2 axis positions – ideal for handling curved parts.

Extend the usefulness of your automation investment by increasing its flexibility to handle a variety parts using Vaccon's apple core style pumps where position adjustments are fast and easy. Choose from the 11 interchangeable venturi cartridges to optimize performance, minimize air consumption and maximize holding force.

The Apple Core pin mounts on either side of the pump and is easily swapped from one side to the other in the field to accommodate new configurations as needed. The pin mounts are undercut to slide past the fastening screw for quick assembly and remain captured during operation. Slide the assembly along the fixed extension shaft (FEB40-2, 3) and clamp in place to set the vertical position.

The VP1X Series features an all-pneumatic High Speed Blow-off function. A pressurized volume chamber onboard provides a rapid blowoff once the compressed air is shut off to the venturi – two functions with only one air line. This eliminates the need for an additional air valve which would have to fill lengths of tubing to reach the cups, further reducing compressed air consumption.

VP1X-90H-AC vacuum pump with pneumatic blow-off with Vaccon's apple core style mount.

Vaccon Apple Core pumps, mounts and clamps are standardized to be retrofitted where non-Vaccon apple core style tooling is used.

Standard Pump and Apple Core Assembly

- **Material:** Anodized aluminum
- **Operating pressure:** 60 PSI for peak performance
- **ST4 silencer** – straight-through silencer won't clog

Pump/Apple Core Options:

- 2 Vacuum levels: Medium "M" 0-20"Hg [0 to 677mbar] or High "H" 0-28"Hg [0 to 948mbar]
- 4 Vacuum flow rates: see page 150 for complete performance data
- Integral Vacuum Switch/Sensor available for "Part Present" Signal

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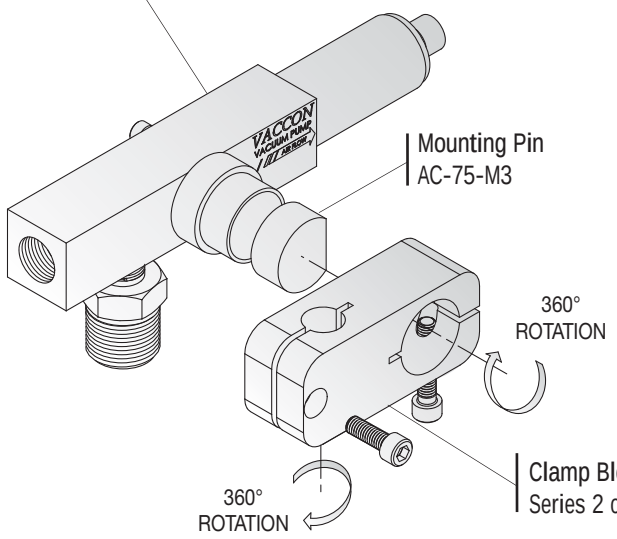
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

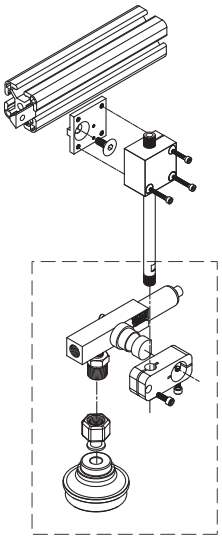
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

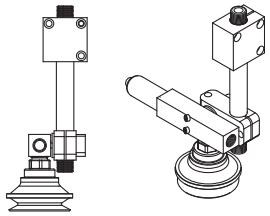
Venturi Pumps with Apple Core Mount & Clamp – Configurations and Options:

VP10: Vacuum Pump - shown
VP1X: Vacuum Pump with blow-off
VP1X-ADJ: Adjustable blow-off



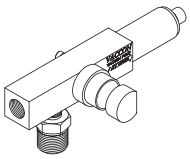


Extrusions with UB: Universal Bracket and FEB: Fixed Extension Bracket. Other brackets and levelers available.

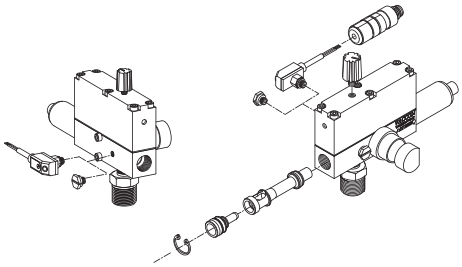


Configurator, CAD Drawings, and On-line Store

Click Here



VP10 Venturi Vacuum Pump with Interchangeable Cartridge and optional Ultra-Mini Sensor/Switch & Quick Disconnect



VP1X and VP1X-ADJ Venturi Vacuum Pump with blow-off (adjustable option) with Interchangeable Cartridge and optional Ultra-Mini Sensor/Switch & Quick Disconnect

How to Specify:

VP1X - 100 M - ADJ - AC75-MP-2 - VSMP-QD

P/N	Body Style
VP10	Vacuum Pump
VP1X	Vacuum Pump with Blow-off

P/N	Max. Flow Level
-60	
-90	
-100	
-150	

P/N	Max. Vac Level
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Adjustable Blow-off
-ADJ	for VP1X pumps only

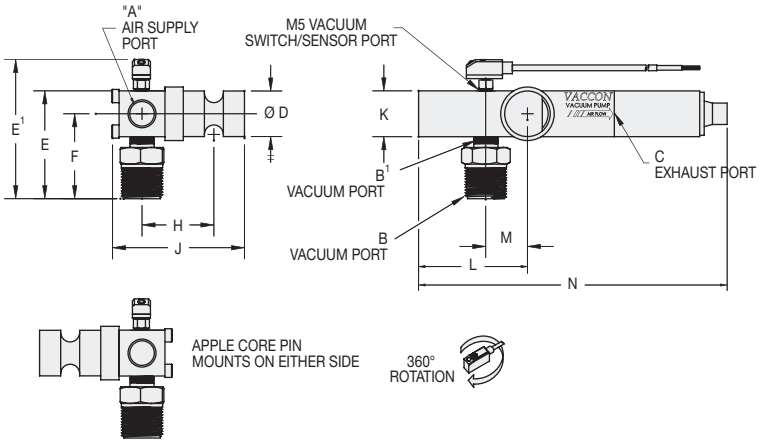
P/N	Switch/Sensor
	None - Standard
-VSMN	Switch – NPN
-VSMP	Switch – PNP
-VTMV	Sensor – 0-5VDC Output
-VSMN-QD	Switch – NPN w/Quick Disconnect
-VSMP-QD	Switch – PNP w/Quick Disconnect
-VTMV-QD	Sensor – 0-5VDC Output w/Quick Disconnect

P/N	Clamp Blocks & Mounting Pin
AC75-MB-2	Clamp Block Series 2
AC75-MB-3	Clamp Block Series 3
AC75-M3	Mounting Pin and Hardware

For complete Performance Data, see page 151.

VP10-(60, 90, 100, 150) (M or H) - AC - Optional Switch/Sensor Quick Disconnect

Left: VP10-AC with Fixed Extension Bracket
Right: VP10 pump with Apple Core mount.



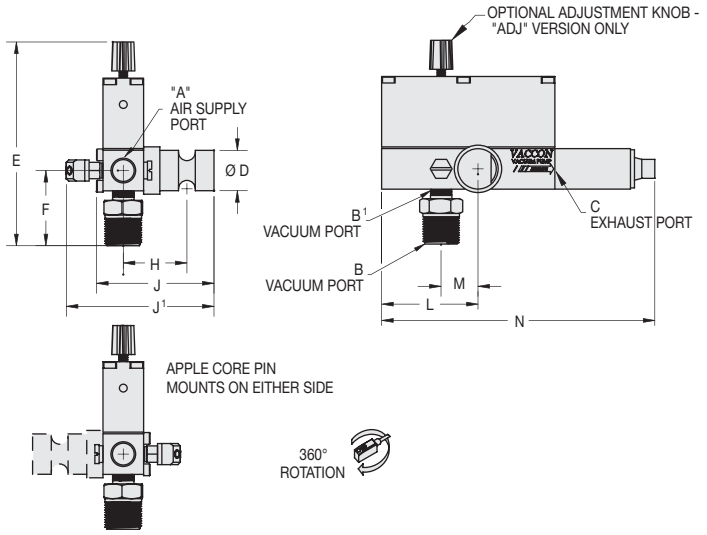
Specifications:

Noise Level 66dB

Model #	Imperial Dimensions (in.)													
	A	B	B¹	C	D	E / E¹	F	H	J	K	L	M	N	Weight*
VP10-AC *with Sensor	1/4" NPT F	3/8" NPT M	1/8" NPT F	1/4" NPT F	0.75	1.79 / 2.28	1.39	1.18	2.16	0.75	1.78	0.68	5.05	5 / 6 oz.
	Metric Dimensions [mm]													
	A	B	B¹	C	D	E / E¹	F	H	J	K	L	M	N	Weight*
	G 1/4	G 3/8	G 1/8	G 1/4	19.1	45.5 / 57.9	35.3	30.0	54.9	19.1	45.2	17.3	128.3	145 / 176 g

VP1X-(60, 90, 100, 150) (M or H)-(ADJ)-AC - Optional Switch/Sensor Quick Disconnect

Left: VP1X-ADJ-AC with Fixed Extension Bracket.
Right: VP1X-ADJ-AD with Apple Core mount.



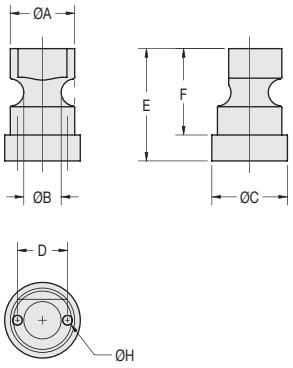
Specifications:

Noise Level 66dB

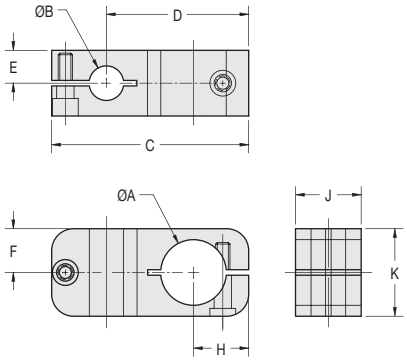
Model #	Imperial Dimensions (in.)													
	A	B	B¹	C	D	E	F	H	J / J¹	K	L	M	N	Weight*
VP1X-AC *with Sensor	1/4" NPT F	3/8" NPT M	1/8" NPT F	1/4" NPT F	0.75	3.76	1.39	1.18	2.2 / 2.73	N/A	1.78	0.68	5.05	8 / 9 oz.
	Metric Dimensions [mm]													
	A	B	B¹	C	D	E	F	H	J / J¹	K	L	M	N	Weight*
	G 1/4	G 3/8	G 1/8	G 1/4	19.1	95.5	35.3	30.0	55.9 / 69.3	N/A	45.2	17.3	128.3	238 / 269 g

Apple Core Mounting Pin and Clamps

Mounting Pin AC75-M3



Clamp Block AC75-MB-2 & AC75-MB-3



Model #		Dimensions									Weight
		A	B	C	D	E	F	H	J	K	
AC75-M3 Mounting Pin	in	0.75	0.43	0.88	0.58	1.3	1.0	M3 x 0.5	N/A	N/A	0.9 oz
	mm	19.1	11.0	22.2	14.7	33.0	25.4	M3 x 0.5	N/A	N/A	25.5 g
AC75-MB-2 Clamp Series 2	in	0.75	0.40	2.25 [57.2]	1.63 [41.3]	0.38 [9.5]	0.50 [12.7]	0.63 [16.0]	0.75 [19.1]	1.00 [25.4]	1.7 oz
	mm	19.1	10.0								48.2 g
AC75-MB-3 Clamp Series 3	in	0.75	0.59								1.5 oz
	mm	19.1	15.0								42.5 g

How to Specify:

Choose the clamp size (Series 2 or 3) that corresponds to the Fixed Extension Bracket size (Series 2 or Series 3).
Order by part number as separate line items. i.e. **AC75-MB-3**

VP10, VP1X & VP1X-ADJ Pump Standard Specifications:

Pump Material: Anodized Aluminum (For silencer material, See page 236)

Cartridge Material: Nylon, Buna-N O-ring (Other materials available - Page 7)

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gas

Operating Temperature: -30°~250° F [-34°~121°C]

Operating Pressure: 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

VP10, VP1X & VP1X-ADJ Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends VF125LPM – See Page 282	Typically filters are not required, if desired Vaccon recommends VF250F – See Page 282

Control Valve: 3 way (faster part release), minimum orifice – 0.125" ID [3mm]

Mounting Holes: Mounting holes accept 4-40 [M3] screws

Mid Series Segmented Vacuum Manifolds

Segmented Manifold Series: VMS

Flexible automation – Four, six station manifolds control an End-of-Arm Tool that configures different zones of cups to handle a wide variety of stamped metal parts. No tool change required.

Ideal Applications:

- Pick and place
- Robotic assembly
- Material handling

Features/Benefits:

- Precise control – control both the vacuum and the blow-off duration time.
- Fast response – no delay due to long plumbing lines; installs close to vacuum point
- Instantaneous vacuum as needed – minimal air consumption
- High productivity – cycle rates up to 2700/min
- Reliable, trouble-free operation
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ No downtime
  - ~ No filters required

VMS3A-90H-1-1-1-0

Configurator, CAD Drawings, and On-line Store

Click Here

Standard Manifolds:

The VMS Mid Series Segmented Vacuum Manifolds are individual vacuum segments with a common air supply that provides independent vacuum to multiple locations.

Segments can be individually configured or they can all be the same. All segments offer integral NC solenoid control for vacuum creation. For added functionality, specify a valve for blow-off and a vacuum switch/sensor for part present/vacuum achieved feedback.

Design flexibility is further increased with our interchangeable venturi cartridge system that allows designers to optimize performance by choosing from 11 venturi cartridges. (see page 7).

Large internal flow paths allow ingested debris to pass through the segments without clogging. Push-to-connect air supply and vacuum lines save space and assembly time.

Performance Level Designations:

"**L**" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Segmented Manifold Options:

- Interchangeable Venturi cartridges – 11 different performance levels
- Miniature vacuum switches/sensors for reliable part detection/optional quick disconnects
- On-board integral control valves – 24vDC or 110vAC
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional.

Eliminate the Guesswork: Contact Us!

Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

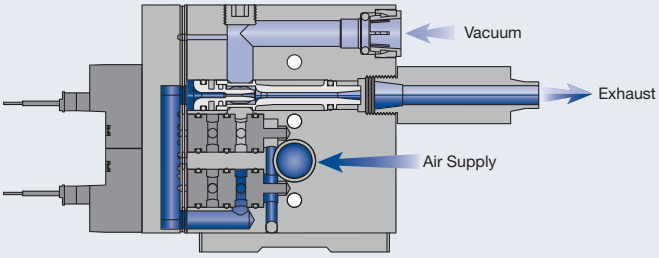
To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

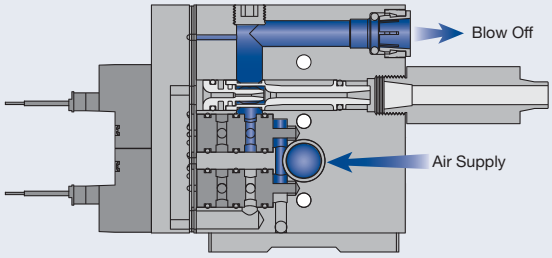
For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Principles of Operation: VMS

Compressed air is supplied to both N.C. solenoid valves simultaneously (if outfitted with blow-off function). To create vacuum, energize the first solenoid valve to allow the compressed air to flow to the venturi cartridge resulting in instant vacuum at the vacuum port.

To release the part, de-energize the vacuum solenoid while energizing the blow-off solenoid. Because the blow-off air is at line pressure a very powerful blow-off will be created.





Note: Each segment of the manifold operates independently, but uses a common air supply located on the standoff on both ends of the assembly. Both air supply ports may be used if the number of pump segments requires more volume.

VMS Manifold Segment Standard Specifications:

Body Material:	Anodized Aluminum, Buna-N, Brass, Acetal (For silencer material, see page 236)
Cartridge Material:	Nylon, Buna-N (Other materials available, see page 7)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	-23°~122° F [-5°~50°C]
Operating Pressure:	80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

3-Way Pilot Valve Specifications

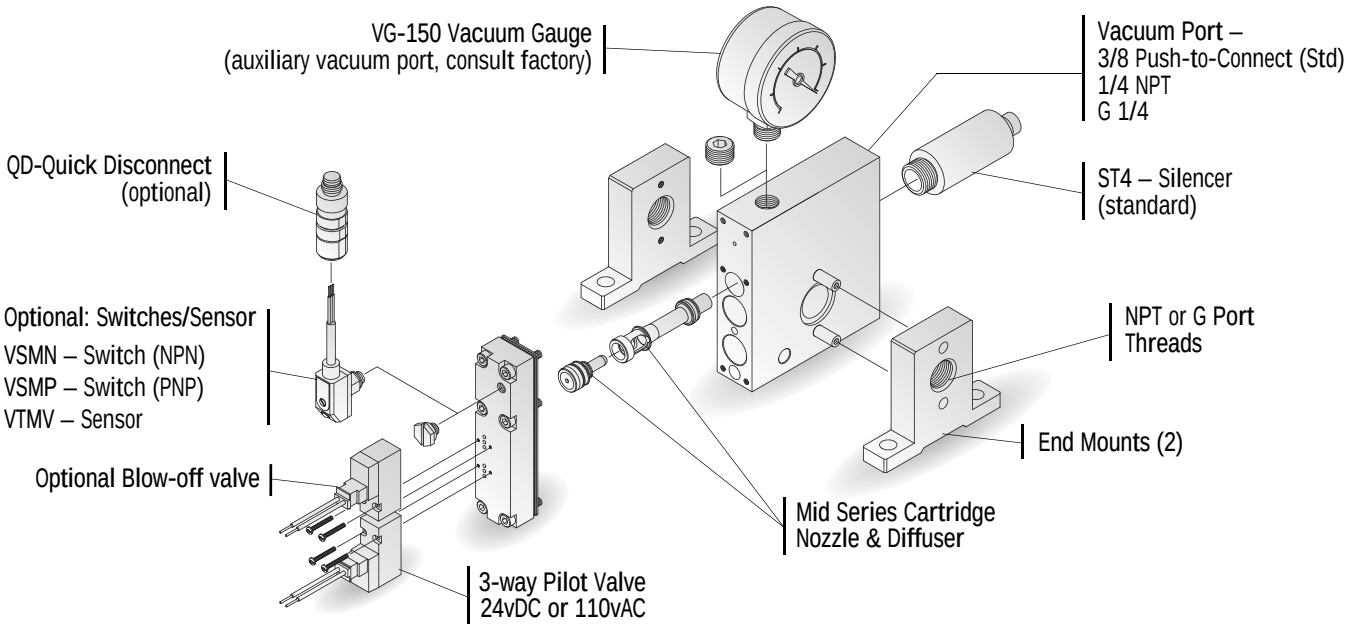
Valve Type:	Integral 3-way solenoid, 24vDC or 110vAC, Normally closed
Valve Body Material:	Copper, Nylon, Stainless Steel
Valve Seal Material:	Buna-N
Valve Operating Pressure:	0 to 100 PSI [0 to 7 BAR]
Average Life:	50 million cycles
Power Consumption:	24vDC: 1.3 watts, 110vAC: 1.0 watts
Response Time:	8 milliseconds
Cycle Rate:	45 cycles per second
Electrical Connection:	2 pole plug-in cable with 24 AWG, 3' [1M] flying leads
Manual Override:	Yes, non-locking, spring return

VMS Operating and Installation Instructions:

Cartridge size:	**C60 (M, H) and C90 (L, M, H)**	**C100 (L, M, H) and C150 (L, M, H)**
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	3/8" O.D. [10mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF250F. See page 282.	
Mounting Holes:	Mounting holes accept 10-32 [M5] screws	

VMS Segmented Manifold Mid-Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to specify segments with the same options:

To order a 5 station manifold with all segments configured the same, specify the total number of segments first and then the letter "A" for "all the same."

Segment 1: VMS 5 A - 60 H - 0 - 0 - 0 - 0 - 0

How to specify segments with different options:

Segment numbers are left to right when facing the vacuum port. Please see next page.

To order a 3-station manifold with different configurations, specify the total number of segments after "VMS"and then list each line separately.

How to Specify:

Segment 1: VMS3 - 1 - 60 H - 1 - 0 - 1 - 1 - 0

Segment 2: VMS3 - 2 - 90 M - 1 - 1 - 1 - 1 - 0

Segment 3: VMS3 - 3 - 100 H - 1 - 0 - 1 - 1 - 0

P/N	Thread
VMS	NPT
I-VMS	G-Port

P/N	Segments
(1-10) A	Total number of segments, followed by "A" – all segments the same.
1	Segment 1
2	Segment 2
3	Segment 3

P/N	Max. Flow Level
-60	
-90	
-100	
-150	

P/N	Max. Vac Level
L	10"Hg [339mbar]
M	20"Hg [677mbar]
H	28"Hg [948mbar]

P/N	Vacuum Ports
0	3/8" PTC (Standard)
1	1/4 NPT
2	G 1/4

P/N	Switch/Sensor
0	None (Standard)
1	VSMN – Switch NPN
2	VSMP – Switch PNP
3	VTMV – Sensor
4	VSMN-QD Switch w/Quick Disconnect
5	VSMP-QD Switch w/Quick Disconnect
6	VTMV-QD Sensor w/Quick Disconnect 0-5VDC Output

P/N	Blow-off
0	None (Standard)
1	Full

P/N	Operating Pressure
0	80 PSI [5.5 BAR] (Standard)
1	60 PSI [4.0 BAR]

P/N	Valve Voltage
0	24vDC
1	110vAC

For complete Performance Data, see page 148.

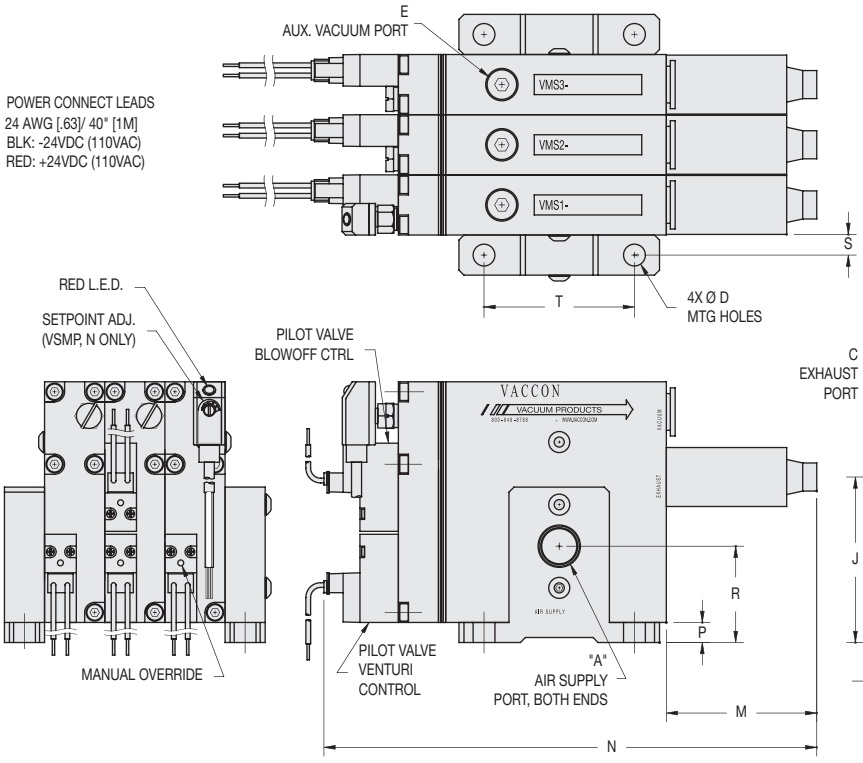
Standard Manifold: VMS(#) – (60, 90, 100, 150) (L, M, H)

3 Station Manifold – VMS3 with options:

Segment 3 includes blow-off/no sensor

Segment 2 includes sensor/no blow-off

Segment 1 includes blow-off and sensor



Manifold segments are defined from left to right when facing the vacuum port.

Specifications:

Segment Weight	11.5 oz [326g]
End Mounts	3.8 oz [108g]
Noise Level	66 dB

Model #	Imperial Dimensions (in.)															
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T
VMS	1/4 NPT	3/8 PTC*	1/4 NPT	0.27	1/8 NPT	0.75	0.50	2.06	2.87	3.25	1.88	6.14	0.25	1.20	0.25	1.88
Model #	**Metric Dimensions (mm)**															
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T
I-VMS	G 1/4	10mm	G 1/4	6.9	G 1/8	19.1	12.7	52.4	73.0	82.6	47.6	156.0	6.4	30.5	6.4	47.6

*PTC – Push-to-connect fitting is standard. Consult factory for 1/4" NPT (G 1/4) threads.

Fixed Length Vacuum Manifold

Fixed Length Manifold Series: VMF

Custom designed manifolds can be an array of individual pumps or a single manifold block with customer selected options. For application flexibility, design with interchangeable venturi cartridges. For chemical compatibility or hazardous environments, design using seal-less (no o'rings) pre-set, fixed venturi cartridges.

Ideal Applications:

- Pick and place
- End-of-arm Tooling/Robotics
- Packaging
- Vessel Evacuation
- Vacuum clamping/holding fixtures

Features/Benefits:

- Custom designed – you choose size, shape, options and performance specifications
- Economic – instant vacuum as needed, minimal air consumption
- Easy to install – pre-assembled with customer specified connections
- Precise control – individual electrical connections
- Reliable – trouble free operation
  - ~ Straight-through design, non-clogging
  - ~ No moving parts to wear out
  - ~ No flap valves to stick open
  - ~ No filters required

Standard Manifolds:

All Fixed Length Vacuum Manifolds and modules are designed and manufactured to meet specific customer application requirements for new or existing equipment.

VMF manifolds offer designers the freedom and flexibility to create the most efficient and economic vacuum manifold system to meet their automation environment. In many applications a variety of pneumatic components such as venturi vacuum cartridges, solenoid valves, check valves, vacuum switches, pressure regulators and ball valves are combined to make a complete pneumatic circuit offering both vacuum and pressure. Vaccon engineers are experts at designing modules that are compact, energy efficient, fast acting and easy-to-install.

Whether it's an inkjet printer, automotive End-of-Arm tool, nitrogen tire filling module, IC handler or inflation/deflation module for an RV, Vaccon has the most powerful and reliable vacuum solution.

All manifolds are made of anodized aluminum unless otherwise requested.

Performance Level Designations:

"**L**" 0-10"Hg, [0 to 339mbar] for low vacuum/high flow applications

"**M**" 0-20"Hg, [0 to 677mbar] for medium vacuum/high flow applications

"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Fixed Length Manifold Options:

- Independent or common vacuum and air supply lines
- Choice of port sizes and locations – simplify connections, plumbing flexibility and tubing sizes
- Push to Connect fittings and/or threaded ports
- G Port threads for metric machines
- Mini and Mid Series interchangeable venturi cartridges – application versatility
- Individual pumps or single manifold block – for easy assembly or add-on capabilities
- Size and shape – to meet customer specifications or existing machine footprint
- Internal check valves for holding vacuum or allowing atmospheric air in
- Vacuum switches/sensors for reliable part detection
- Choice of operating pressures to meet machine and factory air supply
- Control valves (24vDC or 110vAC) for precise control of vacuum and blow-off
- Quick Disconnects for easy electrical connections
- Vacuum gauges for visual monitoring
- Silencers for quiet, safe operation
- Custom materials available for chemical compatibility, heat and environmental requirements, food and medical applications – Consult factory.

All Fixed Length Manifolds are custom made. Please contact Vaccon Engineering for design assistance.

Performance Data for Mini Series Pumps & Cartridges

For Pump Models: VP00, VP01, VP01QR, VP0X, and Manifolds

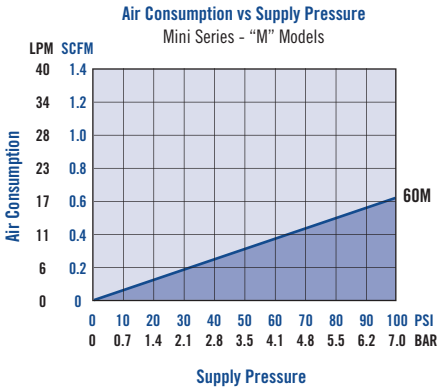
M-Series Pumps for Medium Vacuum Applications

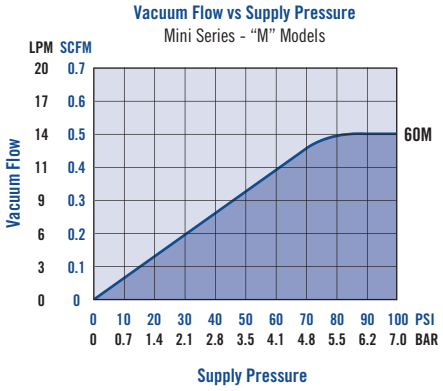
M is for “Medium” vacuum levels up to 20" Hg [677mbar] for applications involving porous materials (cardboard, wood, masonry, baked goods, textiles).

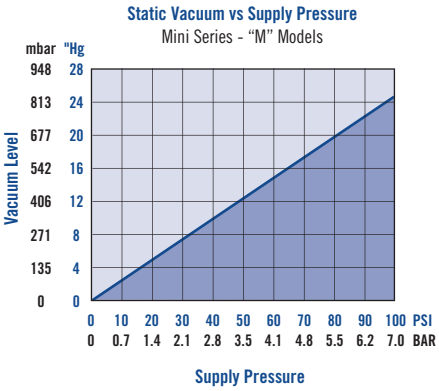
Model #	Air Consumption SCFM	Imperial - Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
CM60M	0.50	0.50	0.40	0.30	0.22	0.15	0.08	0.03	0.00
		Evacuation Time in Seconds based on 1 Cu. Ft. Volume/"Hg							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
		0.00	12.50	25.10	43.90	68.60	99.30	153.70	227.00

Model #	Air Consumption L/min	Metric - Vacuum Flow (L/min) vs. Vacuum Level (mbar)							
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	677mbar
CM60M	14.16	0.0	11.3	8.5	6.2	4.2	2.3	0.8	0.0
		Evacuation Time in Seconds based on 1 Liter Volume / mbar							
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	677mbar
		0.0	0.4	0.9	1.6	2.4	3.5	5.4	8.0

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.







Performance Data for Mini Series Pumps & Cartridges

For Pump Models: VP00, VP01, VP01QR, VP0X, and Manifolds

H-Series Venturis – High Vacuum Applications

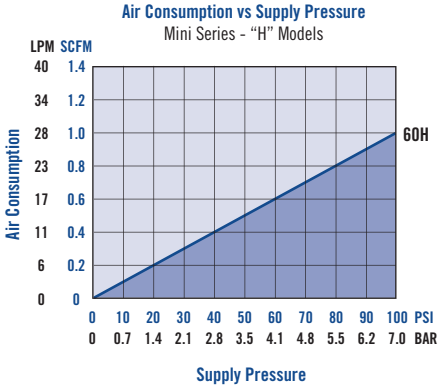
H is for "High" vacuum levels up to 28"Hg [948mbar] for applications involving non-porous materials (steel, plastic, glass, etc.)

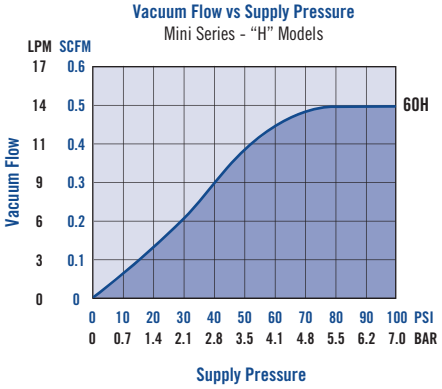
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)										
CM60H	0.80	0 "Hg	3 "Hg	6 "Hg	9 "Hg	12 "Hg	15 "Hg	18 "Hg	21 "Hr	24 "Hg	27 "Hg	28 "Hg
		0.50	0.38	0.32	0.30	0.27	0.23	0.20	0.13	0.05	0.02	0.00
		Evacuation Time in Seconds based on 1 Cu. Ft. Volume/"Hg										
		0 "Hg	3 "Hg	6 "Hg	9 "Hg	12 "Hg	15 "Hg	18 "Hg	21 "Hg	24 "Hg	27 "Hg	928 "Hg
		0.00	15.00	29.80	50.60	74.50	102.80	135.90	182.20	245.90	410.20	790.80

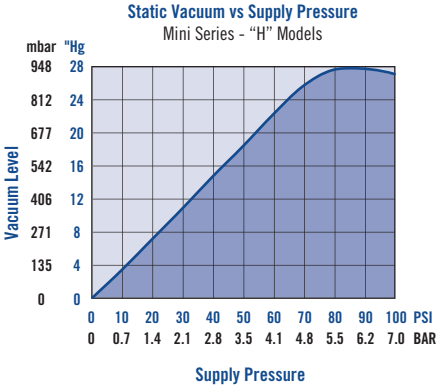
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)										
CM60H	22.7	0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	914 mbar	948 mbar
		14.2	10.8	9.1	8.5	7.6	6.5	5.7	3.7	1.4	0.6	0.0
		Evacuation Time in Seconds based on 1 Liter Volume/mbar										
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	914 mbar	948 mbar
		0.0	0.5	1.1	1.8	2.6	3.6	4.8	6.5	8.7	14.5	27.9

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for Mid Series Pumps & Cartridges

For Pump Models: VP10, VP10-AC, VP10-MP, VP1X, VP20, VP20-AS, VP20-MP, VP2X, VP2XV, VP30, VP30QR, and Manifolds

L-Series Venturis – Low Vacuum Applications

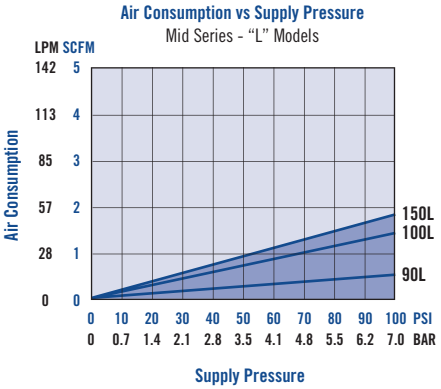
L is for "Low" vacuum levels up to 10"Hg [339 mbar] for applications handling delicate parts, thin walled materials and for process control.

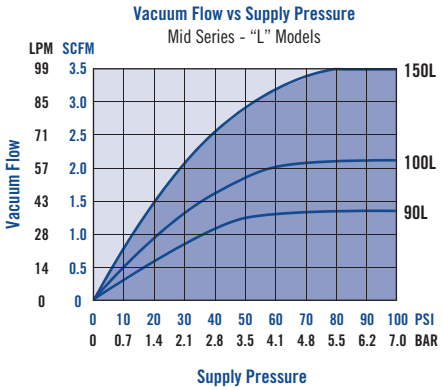
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)				
		0"Hg	3"Hg	6"Hg	9"Hg	10"Hg
90L	0.50	1.30	1.10	0.70	0.20	0.00
100L	1.40	2.10	1.60	1.10	0.50	0.00
150L	1.80	3.50	2.50	1.90	0.70	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**				
		0"Hg	3"Hg	6"Hg	9"Hg	10"Hg
90L		0.00	3.26	7.93	18.65	39.63
100L		0.00	2.33	4.66	10.88	24.09
150L		0.00	1.54	4.36	10.77	22.83

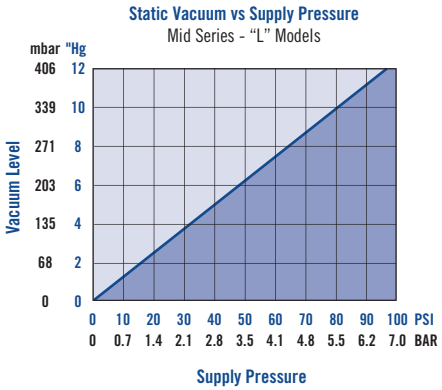
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)				
		0 mbar	102 mbar	203 mbar	305 mbar	339 mbar
90L	14.2	36.8	31.1	19.8	5.7	0.0
100L	39.6	59.5	45.3	31.1	14.2	0.0
150L	51.0	99.1	70.8	53.8	19.8	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**				
		0 mbar	102 mbar	203 mbar	305 mbar	339 mbar
90L		0.0	0.1	0.3	0.7	1.4
100L		0.0	0.1	0.2	0.4	0.9
150L		0.0	0.1	0.2	0.4	0.8

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for Mid Series Pumps & Cartridges

For Pump Models: VP10, VP10-AC, VP10-MP, VP1X, VP20, VP20-AS, VP20-MP, VP2X, VP2XV, VP30, VP30QR, and Manifolds

M-Series Venturis – Medium Vacuum Applications

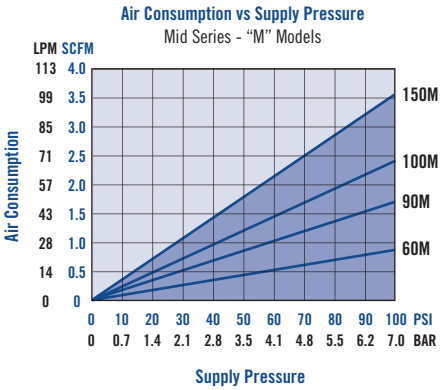
M is for "Medium" vacuum levels up to 20"Hg [677mbar] for applications involving porous materials (cardboard, wood, masonry, baked goods, textiles)

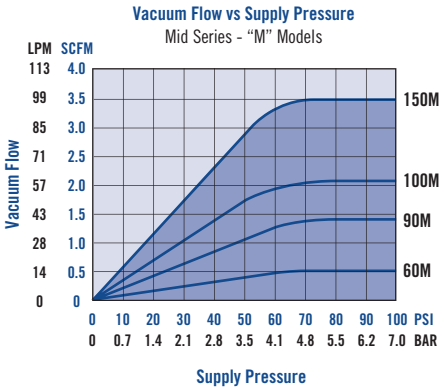
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
60M	0.50	0.50	0.40	0.30	0.22	0.15	0.08	0.03	0.00
90M	1.40	1.40	1.25	1.20	1.05	0.85	0.65	0.25	0.00
100M	1.80	2.10	2.00	1.85	1.75	1.60	1.25	0.80	0.00
150M	2.80	3.50	3.20	2.95	2.75	2.50	1.80	0.95	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**							
		0"Hg	3"Hg	6"Hg	9"Hg	12 Hg	15"Hg	18"Hg	20"Hg
60M		0.00	12.50	25.10	43.90	68.60	99.30	153.70	227.00
90M		0.00	3.75	7.20	12.40	19.10	29.90	52.00	104.00
100M		0.00	2.65	5.80	9.90	16.20	22.90	36.20	56.60
150M		0.00	1.35	3.20	5.20	7.70	11.80	23.40	52.00

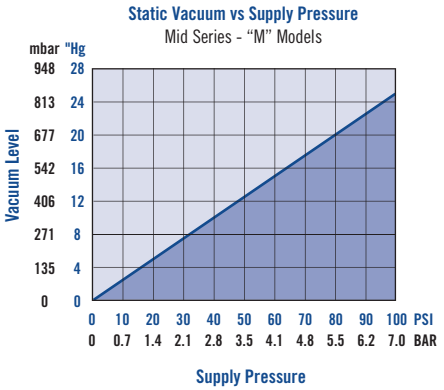
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)							
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	677 mbar
60M	14.2	14.2	11.3	8.5	6.2	4.2	2.3	0.8	0.0
90M	39.6	39.6	35.4	34.0	29.7	24.1	18.4	7.1	0.0
100M	51.0	59.5	56.6	52.4	49.6	45.3	35.4	22.7	0.0
150M	79.3	99.1	90.6	83.5	77.9	70.8	51.0	26.9	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**							
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	677 mbar
60M		0.0	0.4	0.9	1.6	2.4	3.5	5.4	8.0
90M		0.0	0.1	0.3	0.4	0.7	1.1	1.8	3.7
100M		0.0	0.1	0.2	0.3	0.6	0.8	1.3	2.0
150M		0.0	0.0	0.1	0.2	0.3	0.4	0.8	1.8

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for Mid Series Pumps & Cartridges

For Pump Models: VP10, VP10-AC, VP10-MP, VP1X, VP20, VP20-AS, VP20-MP, VP2X, VP2XV, VP30, VP30QR, and Manifolds

H-Series Venturis – High Vacuum Applications

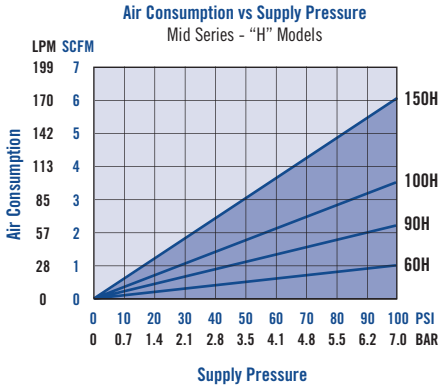
H is for "High" vacuum levels up to 28"Hg [948 mbar] for applications involving non-porous materials (steel, plastic, glass, etc.)
The High vacuum level provides high vacuum force for lifting heavy materials and holding them securely.

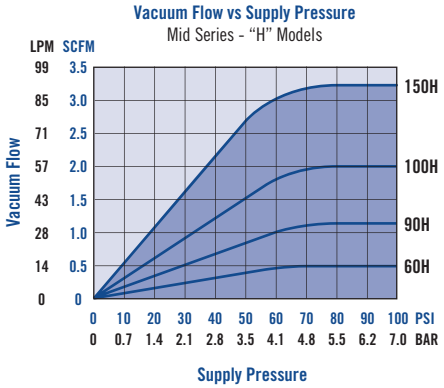
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27 Hg	28"Hg
60H	0.80	0.50	0.38	0.32	0.30	0.27	0.23	0.20	0.13	0.05	0.02	0.00
90H	1.80	1.20	1.00	0.95	0.90	0.85	0.75	0.70	0.52	0.47	0.20	0.00
100H	2.80	2.00	1.85	1.75	1.57	1.40	1.25	1.05	0.84	0.70	0.35	0.00
150H	4.80	3.20	2.80	2.50	2.30	2.00	1.60	1.40	1.20	0.80	0.50	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	28"Hg
60H		0.00	15.00	29.80	50.60	74.50	102.80	135.90	183.20	245.90	410.20	790.80
90H		0.00	6.50	12.30	18.90	32.50	47.00	65.40	92.20	130.00	222.20	281.30
100H		0.00	2.70	6.50	11.20	17.50	25.80	38.40	55.20	79.20	166.70	251.80
150H		0.00	2.30	3.80	6.50	10.20	14.20	21.30	44.90	55.00	81.00	125.00

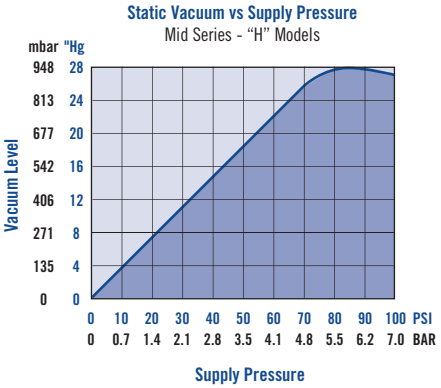
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)										
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	914 mbar	948 mbar
60H	22.7	14.2	10.8	9.1	8.5	7.6	6.5	5.7	3.7	1.4	0.6	0.0
90H	51.0	34.0	28.3	26.9	25.5	24.1	21.2	19.8	14.7	13.3	5.7	0.0
100H	79.3	56.6	52.4	49.6	44.5	39.6	35.4	29.7	23.8	19.8	9.9	0.0
150H	135.9	90.6	79.3	70.8	65.1	56.6	45.3	39.6	34.0	22.7	14.2	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**										
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	914 mbar	948 mbar
60H		0.0	0.5	1.1	1.8	2.6	3.6	4.8	6.5	8.7	14.5	27.9
90H		0.0	0.2	0.4	0.7	1.1	1.7	2.3	3.3	4.6	7.8	9.9
100H		0.0	0.1	0.2	0.4	0.6	0.9	1.4	1.9	2.8	5.9	8.9
150H		0.0	0.1	0.1	0.2	0.4	0.5	0.8	1.6	1.9	2.9	4.4

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for Max Series Pumps & Cartridges

For Pump Models: VP80, VP8X, VP8XV, VP80-AS, VP80-MP, VP90, VP90-AS, VP90-MP, and Manifolds

L-Series Venturis – Low Vacuum Applications

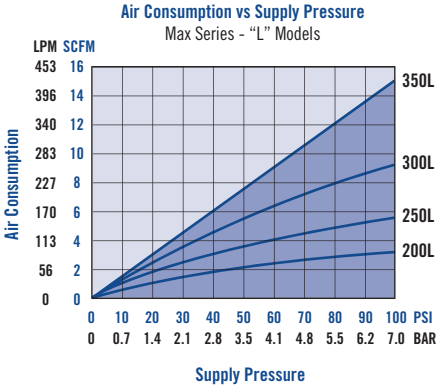
L is for "Low" vacuum levels up to 10"Hg [339 mbar] for applications handling delicate parts, thin walled materials and for process control.

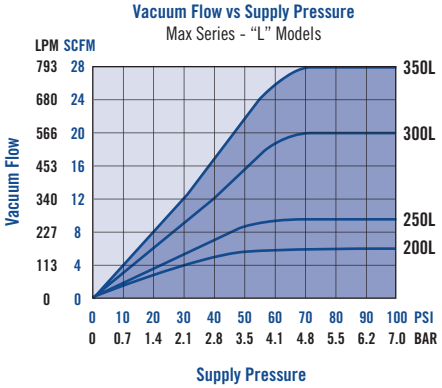
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)				
		0"Hg	3"Hg	6"Hg	9"Hg	10"Hg
200L	2.80	6.00	5.80	4.30	1.70	0.00
250L	4.80	9.50	7.90	5.70	2.20	0.00
300L	7.80	20.00	14.00	9.50	3.50	0.00
350L	12.50	28.00	18.00	12.30	4.50	0.00
Model #		Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg				
		0"Hg	3"Hg	6"Hg	9"Hg	10"Hg
200L		0.00	0.77	2.05	4.62	13.34
250L		0.00	0.52	1.28	3.08	7.95
300L		0.00	0.26	0.77	1.80	4.10
350L		0.00	0.00	0.52	1.28	2.82

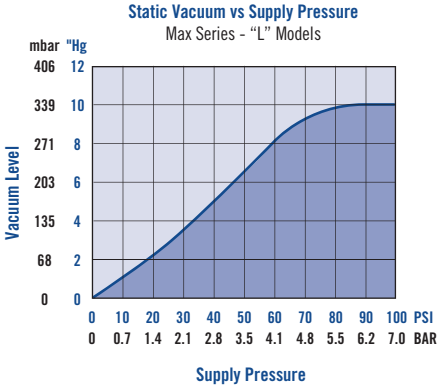
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)				
		0 mbar	102 mbar	203 mbar	305 mbar	339 mbar
200L	79.3	169.9	164.2	121.8	48.1	0.0
250L	135.9	269.0	223.7	161.4	62.3	0.0
300L	220.9	566.3	396.4	269.0	99.1	0.0
350L	354.0	792.9	509.7	348.3	127.4	0.0
Model #		Evacuation Time in Seconds based on 1 Liter Volume/mbar				
		0 mbar	102 mbar	203 mbar	305 mbar	339 mbar
200L		0.0	0.0	0.1	0.2	0.5
250L		0.0	0.0	0.0	0.1	0.3
300L		0.0	0.0	0.0	0.1	0.1
350L		0.0	0.0	0.0	0.0	0.1

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for Max Series Pumps & Cartridges

For Pump Models: VP80, VP8X, VP8XV, VP80-AS, VP80-MP, VP90, VP90-AS, VP90-MP, and Manifolds

M-Series Venturis – Medium Vacuum Applications

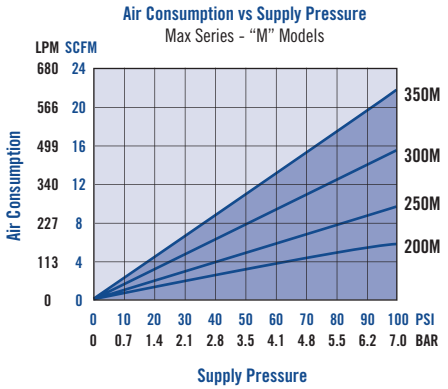
M is for "Medium" vacuum levels up to 20"Hg [667 mbar] for applications involving porous materials (cardboard, wood, masonry, baked goods, textiles)

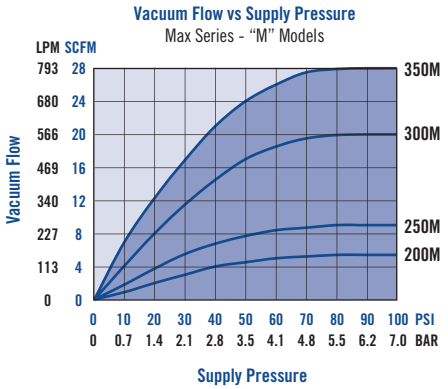
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
200M	4.80	6.00	5.30	4.90	4.00	3.50	2.50	1.10	0.00
250M	7.80	9.50	9.20	8.30	7.00	4.70	3.40	2.20	0.00
300M	12.50	20.00	19.00	16.30	13.80	8.10	5.50	3.30	0.00
350M	22.00	28.00	24.00	19.40	16.80	14.50	11.20	4.80	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
200M		0.00	0.75	1.90	3.20	5.30	8.70	17.10	42.60
250M		0.00	0.45	1.10	2.40	3.80	6.00	9.70	15.40
300M		0.00	0.00	0.00	1.10	1.80	2.70	4.60	8.70
350M		0.00	0.00	0.00	1.00	1.50	2.10	4.30	8.40

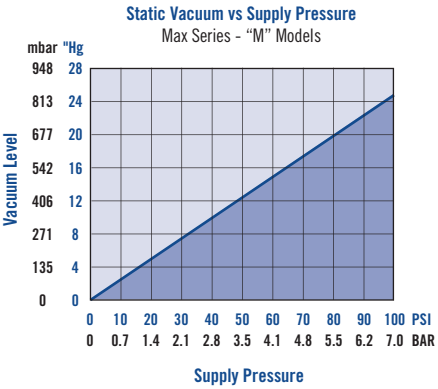
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)							
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	677 mbar
200M	135.9	169.9	150.1	138.8	113.3	99.1	70.8	31.1	0.0
250M	220.9	269.0	260.5	235.0	198.2	133.1	96.3	62.3	0.0
300M	354.0	566.3	538.0	461.6	390.8	229.4	155.7	93.4	0.0
350M	623.0	792.9	679.6	549.3	475.7	410.6	317.1	135.9	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**							
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	677 mbar
200M		0.0	0.0	0.1	0.1	0.2	0.3	0.6	1.5
250M		0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.5
300M		0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3
350M		0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for Max Series Pumps & Cartridges

For Pump Models: VP80, VP8X, VP8XV, VP80-AS, VP80-MP, VP90, VP90-AS, VP90-MP, and Manifolds

H-Series Venturis – High Vacuum Applications

H is for "High" vacuum levels up to 28"Hg [948mbar] for applications involving non-porous materials (steel. plastic, glass, etc.)
The high vacuum level provides high vacuum force for lifting heavy materials and holding them securely.

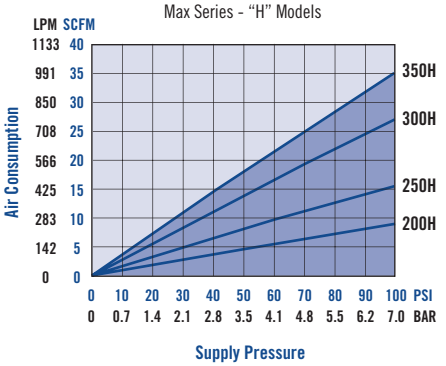
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	28"Hg
200H	7.80	5.40	4.70	3.85	3.30	3.00	2.60	2.10	1.60	1.20	0.60	0.00
250H	12.50	9.00	8.50	7.85	7.00	6.50	5.30	3.90	2.50	1.80	0.90	0.00
300H	22.00	20.00	17.00	14.00	12.70	12.00	10.00	7.40	4.90	2.70	1.30	0.00
350H	28.00	28.00	22.00	18.70	15.90	14.50	11.80	8.10	5.70	4.50	2.25	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	28"Hg
200H		0.00	1.20	2.10	3.40	5.20	7.70	11.50	20.00	33.50	62.60	98.10
250H		0.00	0.75	1.30	2.20	3.50	5.60	9.10	17.40	30.10	56.00	76.00
300H		0.00	0.00	0.80	1.20	2.00	2.80	3.90	5.90	11.10	32.70	60.00
350H		0.00	0.00	0.00	1.20	1.90	2.30	3.40	5.30	8.80	26.00	44.00

Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)										
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	814 mbar	914 mbar	948 mbar
200H	220.9	152.9	133.1	109.0	93.4	85.0	73.6	59.5	45.3	34.0	17.0	0.0
250H	354.0	254.9	240.7	222.3	198.2	184.1	150.1	110.4	70.8	51.0	25.5	0.0
300H	623.0	566.3	481.4	396.4	359.6	339.8	238.2	209.5	138.8	76.5	36.8	0.0
350H	792.9	792.9	623.0	529.5	450.2	410.6	334.1	229.4	161.4	127.4	63.7	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**										
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	814 mbar	914 mbar	948 mbar
200H		0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.7	1.2	2.2	3.5
250H		0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.6	1.1	2.0	2.7
300H		0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.4	1.2	2.1
350H		0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.9	1.6

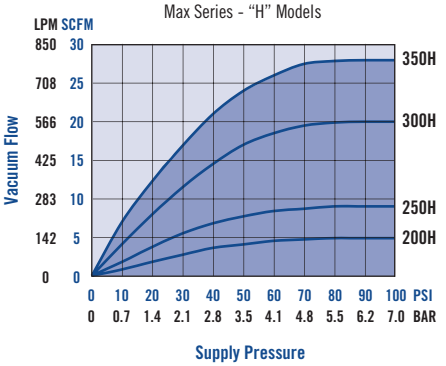
Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.

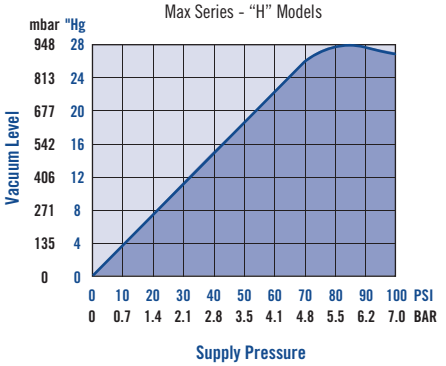
Air Consumption vs Supply Pressure
Max Series - "H" Models



Vacuum Flow vs Supply Pressure
Max Series - "H" Models



Static Vacuum vs Supply Pressure
Max Series - "H" Models



Valve Replacement Parts for VP01/VP01QR Vacuum Pumps

C-01
Din Connector with gasket & 8mm screw for MV24vDCR & MV110vACR

MV24VDCR
Replacement Pilot Valve (24vDC)

C-01 with Valve

MV110VACR
Replacement Pilot Valve (110vAC)

Replacement Diaphragm Kits for VP0X, VP1X, VP2X & VP8X Pumps

VP0X-RDK
*Replacement Diaphragm Kit**

VP12X-RDK
*Replacement Diaphragm Kit**

VP8X-RDK
*Replacement Diaphragm Kit**

*Replacement Diaphragm Kits includes: 1 each of gasket, diaphragm, release fitting and seal.

Replacement Cartridge Valves for Air Saver Pumps and VMS Manifolds

RCV-50
Replacement Cartridge Valve 0.50" dia
For Air Saver Pumps: VP20-AS and VP80-200-AS Series
For VP30/VP30QR, VP2XV, VP8XV pumps and VMS manifolds

RCV-75
Replacement Cartridge Valve 0.75" dia
For Air Saver Pumps: VP80-250-AS and VP90-AS Series

Replacement Pilot Valves VP30/VP30QR, VP2XV/VP8XV VMS Manifolds

PV24R
Replacement Pilot Valve, 10mm, 24 VDC, NC

PV110R
Replacement Pilot Valve, 10mm, 110 VAC, NC

How to Specify:

Order replacement parts by part number shown i.e. **RCV-50**

High Vacuum Venturi Pump up to 29.5"Hg with Silencer

HighVac Series: HVP 100, 200, 300

HVP-100 degassing viscous liquids such as silicone and other mold compounds

Ideal Applications:

- Process control
- Vessel evacuation
- HVAC applications
- Degassing

Features/Benefits:

- High performance – powerful vacuum up to 29.5"Hg [999mbar]
- Fast response time – no delay due to long plumbing lines; mounts in-line and installs close to vacuum point
- Efficient minimal air consumption
- Compact, lightweight and modular – easy to install
- Safe operation – no electricity needed at the pump
- Reliable, trouble-free operation
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

HVP Series

Standard Pump:

The HighVac Series of air-powered venturi vacuum pumps generate vacuum levels up to 29.5" Hg [999mbar] and offer a wide range of vacuum flow rates.

The high vacuum level and compact size of the HVP pump allows you to incorporate smaller and more efficient components in your design. Often used to replace expensive, noisy, heat generating, electric pumps, HVP pumps are quiet and maintenance free, ideal for small shops, labs and recharging HVAC systems.

Pump Options:

- Factory-installed miniature sensors or switches to provide electrical signal for vacuum achieved, part present. Will interface with PLC's and computerized control systems.

Please note: Vacuum Level = The magnitude of suction created by the vacuum pump. Vacuum level is effected by elevation and barometric pressure. For each 1,000 feet of elevation, the vacuum level that the pump can acheive decreases by approximately 1"Hg [33.9mbar].

Eliminate the Guesswork: Contact Us!

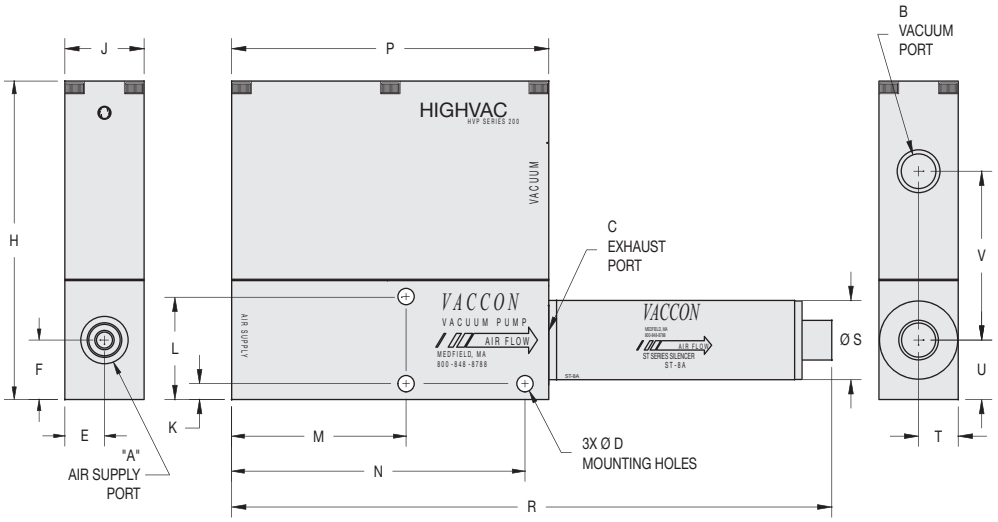
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

HVP HighVac Series Configurations and Options:

Drawing below is representative of all HVP pumps.



HVP-100

Specifications:

Weight	9oz [255g]
Noise Level	71 dB

HVP-200

Specifications:

Weight	1 lb 11 oz [765g]
Noise Level	74 dB

HVP-300

Specifications:

Weight	2 lb [907g]
Noise Level	79 dB

Model #	Imperial Dimensions (in.)														
	A	B	C	D	E	F	H	J	K	L	M	N	P	R	S
HVP-100	1/4 NPTF	1/8 NPTF	1/4 NPTF	0.12	0.38	0.38	2.28	0.75	0.09	0.67	1.78	N/A	3.20	5.06	0.75
HVP-200	1/4 NPTF	1/4 NPTF	1/2 NPTF	0.21	0.50	0.75	4.02	1.00	0.20	N/A	2.20	3.70	4.00	7.57	1.00
HVP-300	3/8 NPTF	1/4 NPTF	1/2 NPTF	0.21	0.50	0.75	4.02	1.00	0.20	N/A	2.50	4.00	5.00	9.81	1.25

HVP Pump Standard Specifications:

Pump Material: Anodized Aluminum (For silencer material, see Silencer section – page 235.

Cartridge Material: Nylon, Buna-N (Other materials available, see page 7)

Medium: Filtered (50 Micron) un-lubricated, noncorrosive dry gases

Operating Temperature: -30°~250° F [-34°~121°C]

Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

HVP Pump Installation Instructions:

Vacuum Line & Supply Line – HVP100/200: 3/8" O.D. [10mm] tube recommended

Vacuum Line Filtration – HVP100/200: Typically filters are not required, if desired Vaccon recommends – VF250. See page 282.

Vacuum Line & Supply Line – HVP300: 5/8" O.D. [16mm] tube recommended

Vacuum Line Filtration – HVP300: Typically filters are not required, if desired Vaccon recommends – VF375. See page 282.

Mounting Holes: HVP-100 = 4-40 [M3], HVP-200/300 = #10-32 [M5] screws

HVP Series - Performance Data

Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	29.5"Hg
HVP-100	4.90	1.30	1.20	1.10	1.00	0.90	0.90	0.90	0.80	0.60	0.30	0.00
HVP-200	8.60	3.45	3.25	3.05	2.75	2.45	2.05	1.90	1.60	1.30	0.90	0.00
HVP-300	22.00	6.00	5.10	4.70	4.40	4.10	3.60	3.00	2.60	1.80	0.90	0.00
Model #		Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	29.5"Hg
HVP-100		0.00	6.50	12.30	18.90	32.50	40.00	52.50	72.50	98.00	135.50	281.30
HVP- 200		0.00	2.30	3.80	6.50	10.20	14.10	20.00	29.50	44.00	67.50	125.00
HVP-300		0.00	1.20	2.10	3.40	5.20	7.70	11.50	16.30	24.00	39.50	98.10

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.

Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)										
		0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508mbar	609 mbar	711 mbar	813 mbar	914 mbar	999 mbar
HVP-100	138.8	36.8	34.0	31.1	28.3	25.5	25.5	25.5	22.7	17.0	8.5	0.0
HVP- 200	243.5	97.7	92.0	86.4	77.9	69.4	58.0	53.8	45.3	36.8	25.5	0.0
HVP- 300	623.0	169.9	144.4	133.1	124.6	116.1	101.9	85.0	73.6	51.0	25.5	0.0
Model #		Evacuation Time in Seconds based on 1 Liter Volume/mbar										
		0 mbar	102 mbar	203 mbar	305 mbar	339 mbar	508mbar	609 mbar	711 mbar	813 mbar	914 mbar	999 mbar
HVP-100		0.00	0.2	0.4	0.7	1.1	1.4	1.9	2.6	3.5	4.8	9.9
HVP-200		0.00	0.1	0.1	0.2	0.4	0.5	0.7	1.0	1.6	2.4	4.4
HVP-300		0.00	0.0	0.1	0.1	0.2	0.3	0.4	0.6	0.8	1.4	3.5

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.

Ultra-Mini Cylindrical Venturi Vacuum Pumps

Ultra-Mini J Series: JS-40UM

JS-40UM generates 27"Hg and weighs less than 1 oz

Ultra-mini pump for drip control in dispensing applications

Ideal Applications:

- Gas sampling and analysis
- Leak testing
- Portion/ drip control (suck-back) for dispensing liquids
- Liquid transfer
- Pick and place for small, non porous parts
- Small vessel evacuation
- Used as vacuum source for vacuum pencil kit (see page 271)

Features/Benefits

- High performance - powerful vacuum up to 27"Hg [914mbar]
- Lightweight – less than 1 oz. [28.3g]
- Compact – 1.25" x .56"OD [31.75mm x 14.22 mm OD]
- Input pressure from 5 PSI [0.34BAR]
- Fast response – Mounts in-line, and installs close to vacuum point – no delay due to long plumbing lines
- Efficient – Minimal air consumption, provides instantaneous vacuum as needed
- Safe operation – No electricity needed
- Reliable, trouble-free operation
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Standard Pump:

The JS-40UM (Ultra-Mini) cylindrical venturi vacuum pump is the smallest complete venturi vacuum pump that Vaccon offers. Incredibly compact and powerful – it measures the size of your finger tip and generates up to 27"Hg [914mbar]. Lightweight, quiet and cool operating, JS-40UM pumps are ideal for confined spaces, where they can be mounted in-line near the point of use for rapid response.

The single-stage design allows ingested contaminants to flow through the pump without clogging ensuring continuous operation. Constructed of a single material, with no seals or moving parts, J Series pumps are virtually indestructible. They can be manufactured in a variety of materials, making them ideal for use in adverse operating conditions.

J Series pumps provide a constant vacuum flow, rather than a fluctuating flow typically associated with diaphragm pumps. They operate with an instantaneous response in pulsed applications or on a continuous basis.

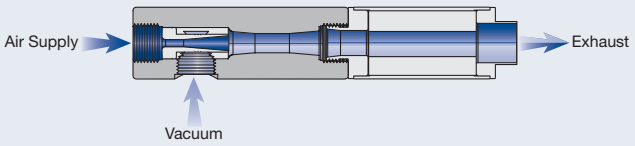
J Series pumps can be powered by alternate media (gases, liquids) etc. For liquid powered pumps please see our JW series on page 183.

Pump Options:

- Optional Silencer: VCF2-1032M
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5BAR] standard, 60 PSI [4.0 BAR] optional
- G port threads for metric machines – an "I" prefix designates products with metric threads
- For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin,™ Teflon,™ PVC.

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port located between the nozzle and diffuser.



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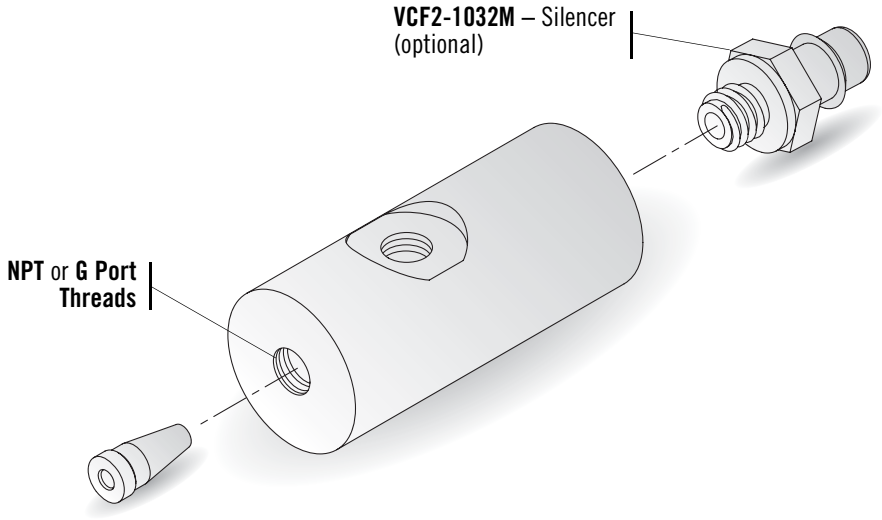
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at www.vaccon.com

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email engineering@vaccon.com

JS-40UM (Ultra Mini) Vacuum Pump – Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to Specify:

JS-40UM - 60 - VCF2 - 303

P/N	Thread	Max. Vac Level
JS-40UM	NPT	27"Hg [914mbar]
I-JS-40UM	G Port	27"Hg [914mbar]

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Standard)
60	60 PSI [4.0 BAR]

For complete Performance Data, see page 164.

P/N	Material
	Anodized Aluminum
303	303 Stainless Steel
304	304 Stainless Steel
316	316 Stainless Steel
316L	316 Low Carbon Stainless
PVC	PVC
TEF	PTFE
PK	PEEK
DEL	Acetal

P/N	Silencer*
	No Silencer (Standard)
VCF2	VCF2-1032M (Straight-through)

*Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.

JS-40UM Pump Standard Specifications:

Pump Material: Anodized Aluminum Standard (Silencer material – Brass)

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -100°F~400°F [-73°~204°C] (without silencer)

Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

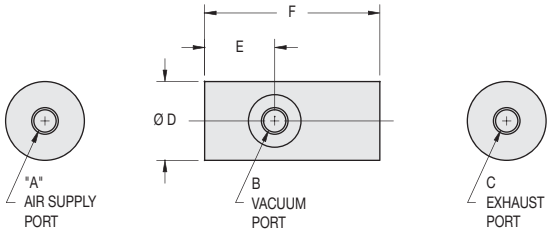
JS-40UM Pump Operating & Installation Instructions:

Supply and Vacuum Lines: Min. 5/32" [4mm], 1/4" O.D. [6mm] tube preferred for supply lines exceeding 3' [1M]

Vacuum Line Filtration: Not required

Standard Pump: JS-40UM

Standard JS-40UM without silencer.



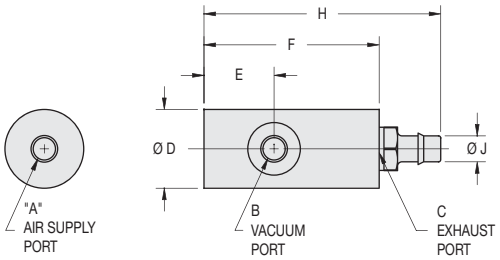
Specifications:

Weight 0.3 oz [8.5g]
Noise Level 58 dB

Model #	Imperial Dimensions (in.)					
	A	B	C	D	E	F
JS-40UM	10-32F	10-32F	10-32F	0.56	0.50	1.25
Model #	**Metric Dimensions (mm)**					
	A	B	C	D	E	F
I-JS-40UM	M5	M5	M5	14.3	12.7	31.8

JS-40UM: Optional Silencer: VCF2-1032M

JS-40UM-VCF2



Specifications:

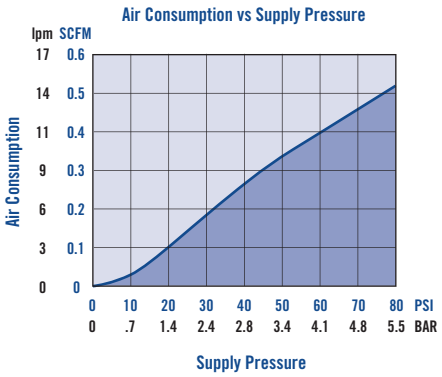
Weight 0.4 oz [9.6g]
Noise Level 54 dB

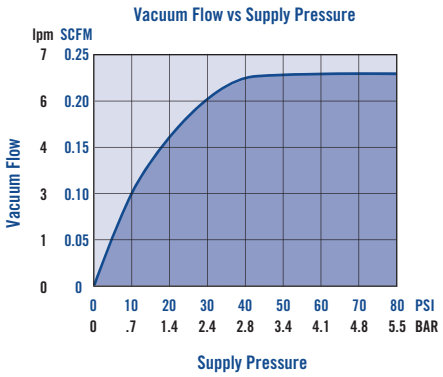
Model #	Imperial Dimensions (in.)							
	A	B	C	D	E	F	H	J
JS-40UM-VCF2	10-32F	10-32F	10-32F	0.56	0.50	1.25	1.69	0.19
Model #	**Metric Dimensions (mm)**							
	A	B	C	D	E	F	H	J
I- JS-40UM-VCF2	M5	M5	M5	14.3	12.7	31.8	42.9	4.7

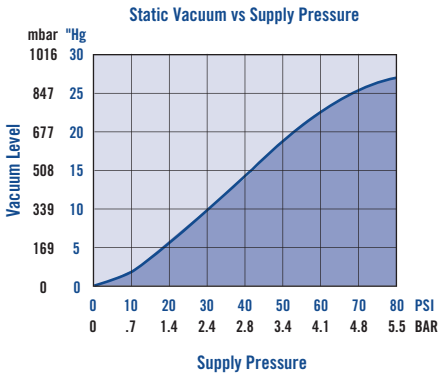
Performance Data – JS-40UM Imperial and Metric

Model #	Air Consumption (SCFM) @ 80 PSI	Imperial - Vacuum Flow (SCFM) vs Vacuum Level ("Hg) @ 80 PSI									
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg
JS-40UM	0.52	0.23	0.20	0.17	0.15	0.13	0.10	0.08	0.05	0.03	0.00
		Imperial - Evacuation Time (Seconds) Based on 1 cu. ft. Volume ("Hg)									
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg
		0.00	24.80	54.40	89.50	130.30	178.30	240.40	334.50	516.70	1028.00

Model #	Air Consumption L/min	Metric - Vacuum Flow (L/min) vs Vacuum Level (mbar)									
		0mbar	102mbar	203mbar	305mbar	406mbar	508mbar	609mbar	711mbar	813mbar	914mbar
I-JS-40UM	14.7	6.5	5.7	4.8	4.2	3.7	2.8	2.3	1.4	0.8	0.0
		Metric - Evacuation Time (Seconds) Based on 1 liter Volume (mbar)									
		0mbar	102mbar	203mbar	305mbar	406mbar	508mbar	609mbar	711mbar	813mbar	914mbar
		0.0	0.9	1.9	3.2	4.6	6.3	8.5	11.8	18.2	36.3





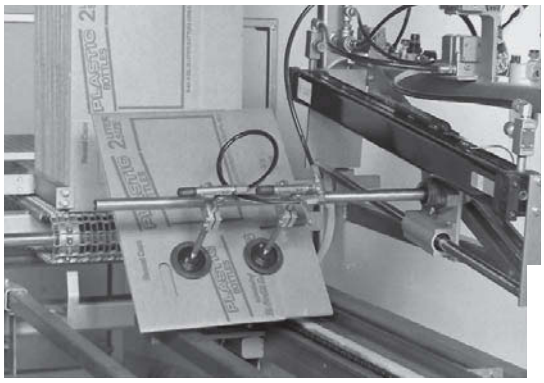


Note 1: Standard operating pressure for Vaccon pumps is 80 PSI. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI, 50PSI etc. The values shown on the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume i.e. a 2 cu. ft volume will take twice as long to evacuate as a 1 cu ft. volume.

Cylindrical Venturi Vacuum Pumps

Mini J Series: "M"(mini) Version



JD-100M – carton erecting application

JS-150M-ST4

Ideal Applications:

- Carton erecting
- Pick and place where one pump powers each cup
- Vessel evacuation
- Medical/pharmaceutical applications
- Food processing applications
- High temperature applications
- Caustic applications

Features/Benefits

- High Performance - powerful vacuum up to 28"Hg [948mbar]
- Durable – rugged aluminum body construction
- Fast response – mounts in-line, and installs close to vacuum point – no delay due to long plumbing lines
- Efficient – minimal air consumption, provides instantaneous vacuum as needed
- Safe operation – no electricity needed
- Reliable, trouble-free operation
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Standard Pump:

The J Series "M" (Mini) version cylindrical venturi vacuum pumps feature a high power-to-size ratio, measuring only 3" L x 3/4" OD. Choose from 11 models that can generate up to 28"Hg [948mbar] and 3.5 SCFM [99LPM] of vacuum flow. Lightweight, quiet and cool operating, J Series pumps are ideal for confined spaces, where they can be mounted in-line near the point of use for rapid response.

The single-stage design allows ingested contaminants to flow through the pump without clogging ensuring continuous operation. Constructed of a single material, with no seals or moving parts, J Series pumps are virtually indestructible. They can be manufactured in a variety of materials, making them ideal for use in adverse operating conditions.

J Series pumps provide a constant vacuum flow, rather than a fluctuating flow typically associated with diaphragm pumps. They operate with an instantaneous response in pulsed applications or on a continuous basis.

J Series pumps can be powered by alternate media (gases, liquids) etc. For liquid powered pumps please see our JW series on page 183.

Performance Level Designation:

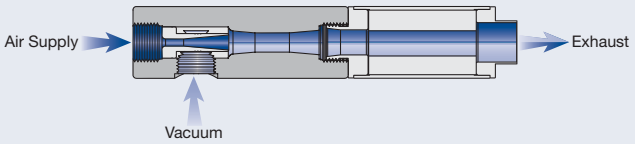
"JF" 0-10"Hg, [0 to 339mbar] for low vacuum / high flow applications
"JD" 0-20"Hg, [0 to 677mbar] for medium vacuum / high flow applications
"JS" 0-28"Hg, [0 to 948mbar] for high vacuum / standard flow applications

Pump Options:

- Silencers: AA4-closed end silencer, ST4 - straight-through silencer won't clog, STAA4 silencers for ultra quiet operation.
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air supply 80 PSI [5.5BAR] standard, 60 PSI [4.0 BAR] optional
- For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin,™ Teflon,™ PVC.

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port located between the nozzle and diffuser.



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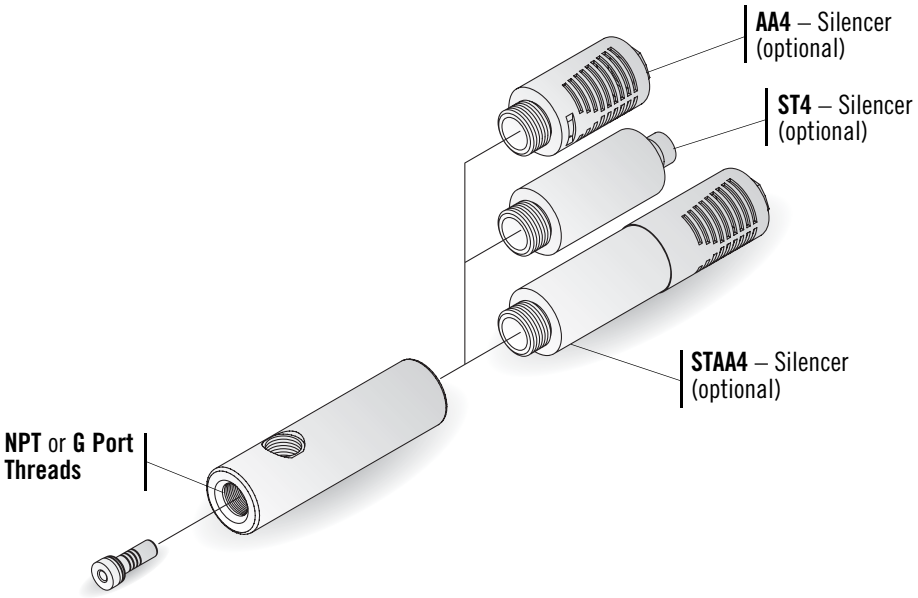
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

J Series "M" Version Vacuum Pump – Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to Specify:

JS - 100M - 60 - ST4 -

P/N	Thread	Max. Vac Level
JF	NPT	10"Hg [339mbar]
JD	NPT	20"Hg [677mbar]
JS	NPT	28"Hg [948mbar]
I-JF	G Port	10"Hg [339mbar]
I-JD	G Port	20"Hg [677mbar]
I-JS	G Port	28"Hg [948mbar]

P/N	Max. Flow Level
-60M	Not avaliable in JF Models
-90M	
-100M	
-150M	

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Standard)
60	60 PSI [4.0 BAR]

P/N	Material
	Anodized Aluminum
303	303 Stainless Steel
304	304 Stainless Steel
316	316 Stainless Steel
316L	316 Low Carbon Stainless
PVC	PVC
TEF	PTFE
PK	PEEK
DEL	Acetal

P/N	Silencer*
	No Silencer (Standard)
AA4	AA4 - Closed-End
ST4	ST4 - Straight-Through
STAA4	STAA4 - Hybrid

*Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.

For complete Performance Data, see page 187.

J Series "M" Version Pump Standard Specifications:

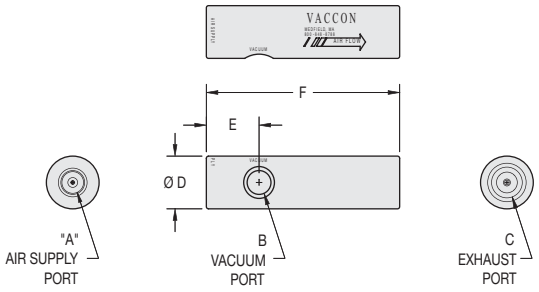
Pump Material:	Anodized Aluminum Standard (for silencer material - See pages 233-237)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	-100°F~400°F [-73°~204°C] (without silencer)
Operating Pressure:	80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

J Series "M" Version Pump Operating and Installation Instructions:

	60M and 90M	100M and 150M
Venturi size:		
Supply Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line:	1/4" O.D. [6mm] tube recommended	3/8" O.D. [10mm] tube recommended
Vacuum Line Filtration:	Typically filters are not required, if desired Vaccon recommends – VF-125LPM – See page 282	Typically filters are not required, if desired Vaccon recommends – VF-250F – See page 282

Standard Pumps: J (F, D, S) – (60, 90, 100, 150) M

JS-100M



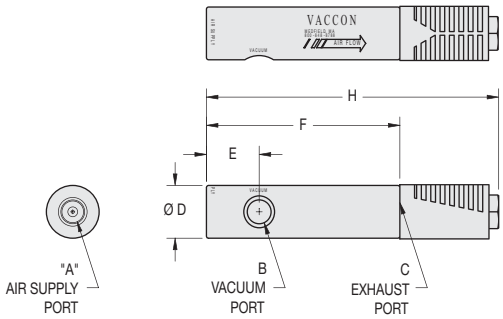
Specifications:

Weight 1.7 oz [48.2g]
Noise Level Vaccon highly recommends the use of silencers on all vacuum pumps unless the exhaust is being plumbed away.

Model #	Imperial Dimensions (in.)					
	A	B	C	D	E	F
J (F, D, S) – (60-150) M	1/8 NPT F	1/8 NPT F	1/4 NPT F	0.75	0.72	2.75
Model #	**Metric Dimensions (mm)**					
	A	**B**	**C**	**D**	**E**	**F**
I-J (F, D, S) – (60-150) M	G 1/8	G 1/8	G 1/4	19.1	19.1	69.9

J (F, D, S) – (60, 90, 100, 150) M Pump – Optional Silencer: AA4

JS-90M-AA4



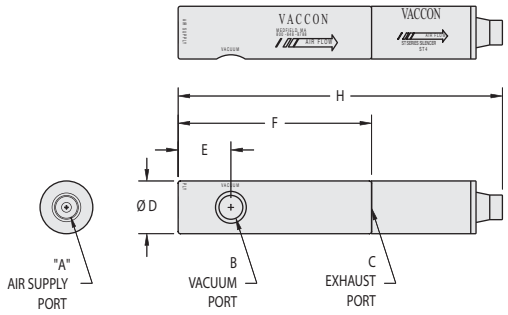
Specifications:

Weight 1.9 oz [53.9g]
Noise Level 64 dB

Model #	Imperial Dimensions (in.)						
	A	B	C	D	E	F	H
J (F, D, S) – (60-150) M-AA4	1/8 NPT F	1/8 NPT F	1/4 NPT F	0.75	0.75	2.75	4.55
Model #	**Metric Dimensions (mm)**						
	A	**B**	**C**	**D**	**E**	**F**	**H**
I-J (F, D, S) – (60-150) M-AA4	G 1/8	G 1/8	G 1/4	19.1	19.1	69.9	115.6

J (F, D, S) – (60, 90, 100, 150) M Pump – Optional Silencer: ST4

JD-60M-ST4



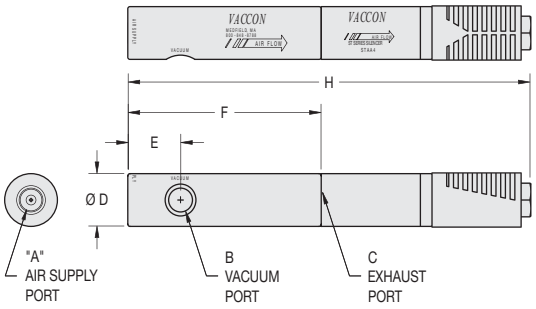
Specifications:

Weight 1.9 oz [53.9g]
Noise Level 66 dB

Model #	Imperial Dimensions (in.)						
	A	B	C	D	E	F	H
J (F, D, S) – (60-150) M-ST4	1/8 NPT F	1/8 NPT F	1/4 NPT F	0.75	0.75	2.75	4.61
Model #	**Metric Dimensions (mm)**						
	A	B	C	D	E	F	H
I-J (F, D, S) – (60-150) M-ST4	G 1/8	G 1/8	G 1/4	19.1	19.1	69.9	117.1

J (F, D, S) – (60, 90, 100, 150) M Pump – Optional Silencer: STAA4

JS-150M-STAA4



Specifications:

Weight 2.1 oz [59.5g]
Noise Level 58 dB

Model #	Imperial Dimensions (in.)						
	A	B	C	D	E	F	H
J (F, D, S) – (60-150) M-STAA4	1/8 NPT F	1/8 NPT F	1/4 NPT F	0.75	0.75	2.75	5.73
Model #	**Metric Dimensions (mm)**						
	A	B	C	D	E	F	H
I-J (F, D, S) – (60-150) M-STAA4	G 1/8	G 1/8	G 1/4	19.1	19.1	69.9	145.5

Cylindrical Venturi Vacuum Pumps

Mid J Series

JS-200-ST6A used extensively in vent-less molding applications i.e. rubber tire mold evacuation

Standard Pump:

The J-100 and J-150 models offer the same performance as their sister pumps, the J-100M and J-150M on page 165, but with larger ports.

The J-200 and 250's offer higher vacuum flows for rapid evacuation of large vessels and to overcome leakage to sustain high vacuum levels while handling porous materials.

Choose from 6 models that can generate up to 28"Hg [948mbar], and 10 SCFM [283LPM] of vacuum flow.

Lightweight, quiet and cool operating, J Series pumps are ideal for confined spaces, where they can be mounted in-line near the point of use for rapid response. The single-stage design allows ingested contaminants to flow through the pump without clogging ensuring continuous operation. Constructed of a single material, with no seals or moving parts, J Series pumps are virtually indestructible. They can be manufactured in a variety of materials, making them ideal for use in adverse operating conditions.

J Series pumps provide a constant vacuum flow, rather than a fluctuating flow typically associated with diaphragm pumps. They operate with an instantaneous response in pulsed applications or on a continuous basis.

J Series pumps can be powered by alternate media (gases, liquids) etc. For liquid powered pumps please see our JW series on page 183.

Performance Level Designation:

"JF" 0-10"Hg, [0 to 339mbar] for low vacuum / high flow applications

"JD" 0-20"Hg, [0 to 677mbar] for medium vacuum / high flow applications

"JS" 0-28"Hg, [0 to 948mbar] for high vacuum / standard flow applications

Ideal Applications:

- Pick and place medium to large size objects
- End-of-Arm Tooling / Robotics
- Vessel evacuation – molds/tanks/bottles/drums
- Packaging - bag/box/carton folding and handling
- Vacuum clamping/holding – fixtures, veneers
- Vacuum filling/bottling operations
- Food processing applications
- High temperature applications
- Caustic applications

Features/Benefits

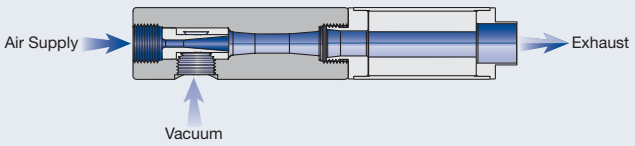
- High performance - powerful vacuum up to 28"Hg [948mbar]
- Durable – rugged aluminum body construction
- Compact & lightweight – easily fits in confined spaces
- Fast response – Mounts in-line, and installs close to vacuum point – no delay due to long plumbing lines
- Efficient – Minimal air consumption, provides instantaneous vacuum as needed
- Safe operation – No electricity needed
- Reliable, trouble-free operation
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Pump Options:

- Silencers: AA6-closed end silencer, ST6A - straight-through silencer won't clog, STAA6 silencers for ultra quiet operation and FA-51-3/8 for high-flow applications
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air requirements (80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional).
- For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin,™ Teflon,™ PVC.

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port located between the nozzle and diffuser.



Eliminate the Guesswork: Contact Us!

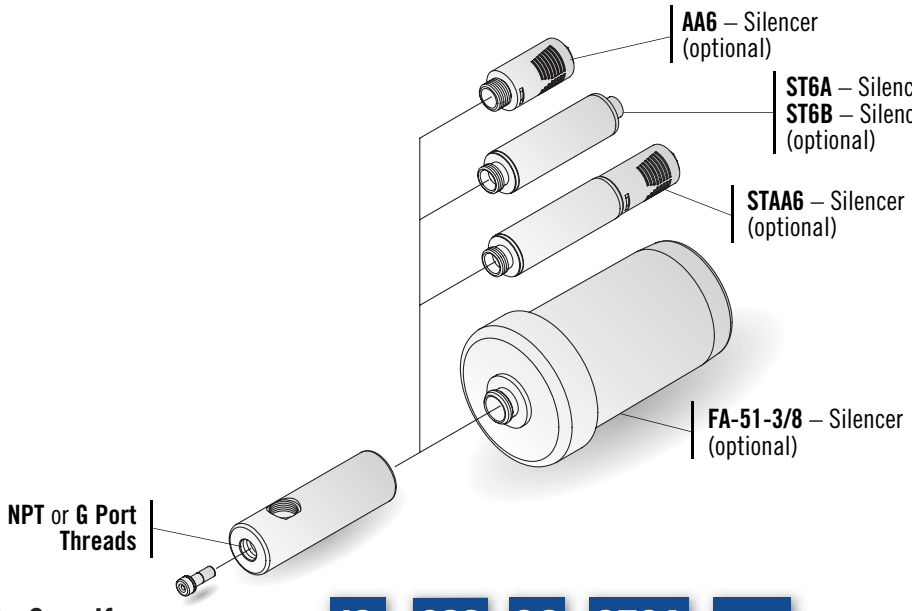
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

J (F, D, S)-(100, 150, 200, 250) Series – Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to Specify:

JS - 200 - 60 - ST6A - ____

P/N	Thread	Max. Vac Level
JF	NPT	10"Hg [339mbar]
JD	NPT	20"Hg [677mbar]
JS	NPT	28"Hg [948mbar]
I-JF	G Port	10"Hg [339mbar]
I-JD	G Port	20"Hg [677mbar]
I-JS	G Port	28"Hg [948mbar]

P/N	Max. Flow Level
-100	
-150	
-200	
-250	

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Standard)
60	60 PSI [4.0 BAR]

P/N	Material
	Anodized Aluminum
303	303 Stainless Steel
304	304 Stainless Steel
316	316 Stainless Steel
316L	316 Low Carbon Stainless
PVC	PVC
TEF	PTFE
PK	PEEK
DEL	Acetal

P/N	Silencer*
	No Silencer (Standard)
AA6	AA6 – Closed-End
ST6A	ST6A – Straight-Through
ST6B	ST6B – Straight-Through (for J-250 Series)
STAA6	STAA6 – Hybrid
FA-51-3/8	FA-51-3/8 – High Flow

For complete Performance Data, see page 187.

*Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.

J Series 100-250 Cylindrical Vacuum Pump Standard Specifications:

Pump Material: Anodized Aluminum Standard (for silencer material - See pages 237-239)

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -100°F~400°F [-73°~204°C] (without silencer)

Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

J Series 100-250 Cylindrical Vacuum Pump Operating and Installation Instructions:

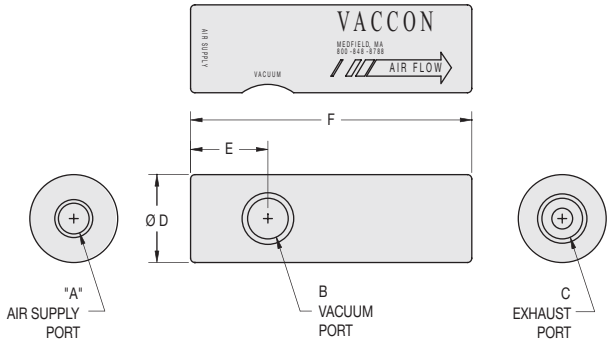
Supply Line: Minimum recommended – 3/8" O.D. [10mm] Preferred – 1/2" [12mm] OD tubing – for J250's

Vacuum Line: Minimum recommended – 3/8" O.D. [10mm] Preferred – 1/2" [12mm] OD tubing – for J250's

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF375F. See page 282.

Standard Pump: J (F, D, S) – (100, 150, 200, 250)

JD-100



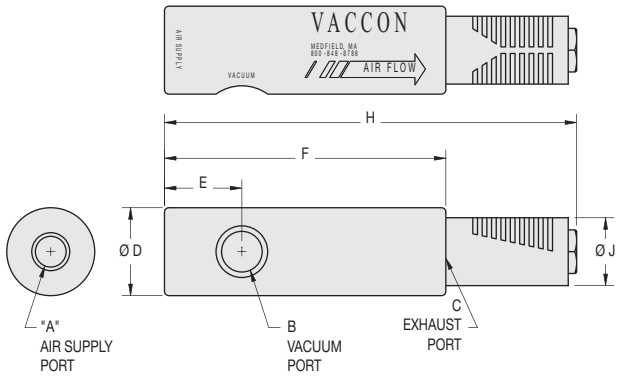
Specifications:

Weight: 6.9 oz [195.6g]
Noise Level: Vaccon highly recommends the use of silencers on all vacuum pumps unless the exhaust is being plumbed away.

Model #	Imperial Dimensions (in.)					
	A	B	C	D	E	F
J (F, D, S) – (100-250)	1/4 NPT F	3/8 NPT F	3/8 NPT F	1.25	1.10	4.00
Model #	**Metric Dimensions (mm)**					
	A	B	C	D	E	F
I- J (F, D, S) – (100-250)	G 1/4	G 3/8	G 3/8	31.8	27.9	101.6

J (F, D, S) – (100, 150, 200) Pump – Optional Silencer: AA6

JS-200-AA6 (AA6 silencer not recommended on J-250 pumps)



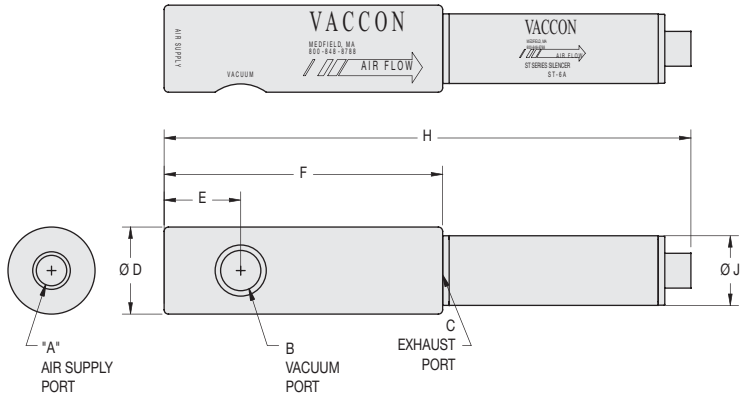
Specifications:

Weight: 7.2 oz [204.1g]
Noise Level: 70 dB

Model #	Imperial Dimensions (in.)							
	A	B	C	D	E	F	H	J
J (F, D, S) – (100, 150, 200) - AA6	1/4 NPT F	3/8 NPT F	3/8 NPT F	1.25	1.10	4.00	5.86	1.00
Model #	**Metric Dimensions (mm)**							
	A	B	C	D	E	F	H	J
I- J (F, D, S) – (100, 150, 200) - AA6	G 1/4	G 3/8	G 3/8	31.8	27.9	101.6	148.8	25.4

J (F, D, S) – (100, 150, 200, 250) Pump – Optional Silencer: ST6A

JF-150-ST6A



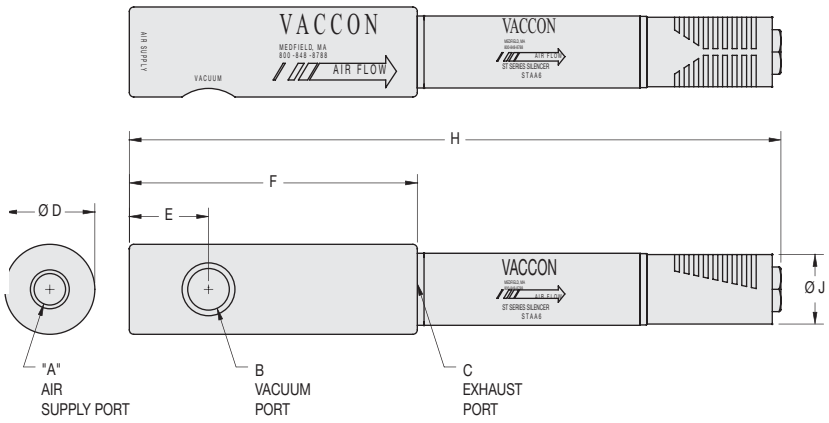
Specifications:

Weight: 8.6 oz [243.8g]
Noise Level: 72 dB

Model #	Imperial Dimensions (in.)							
	A	B	C	D	E	F	H	J
J (F, D, S) – (100-250) - ST6A	1/4 NPT F	3/8 NPT F	3/8 NPT F	1.25	1.10	4.00	7.57	1.00
Model #	**Metric Dimensions (mm)**							
	A	B	C	D	E	F	H	J
I- J (F, D, S) – (100-250) - ST6A	G 1/4	G 3/8	G 3/8	31.8	27.9	101.6	192.2	25.4

J (F, D, S) – (100, 150, 200) Pump – Optional Silencer: STAA6

JS-200-STAA6 (STAA6 silencer not recommended on J-250 pumps)

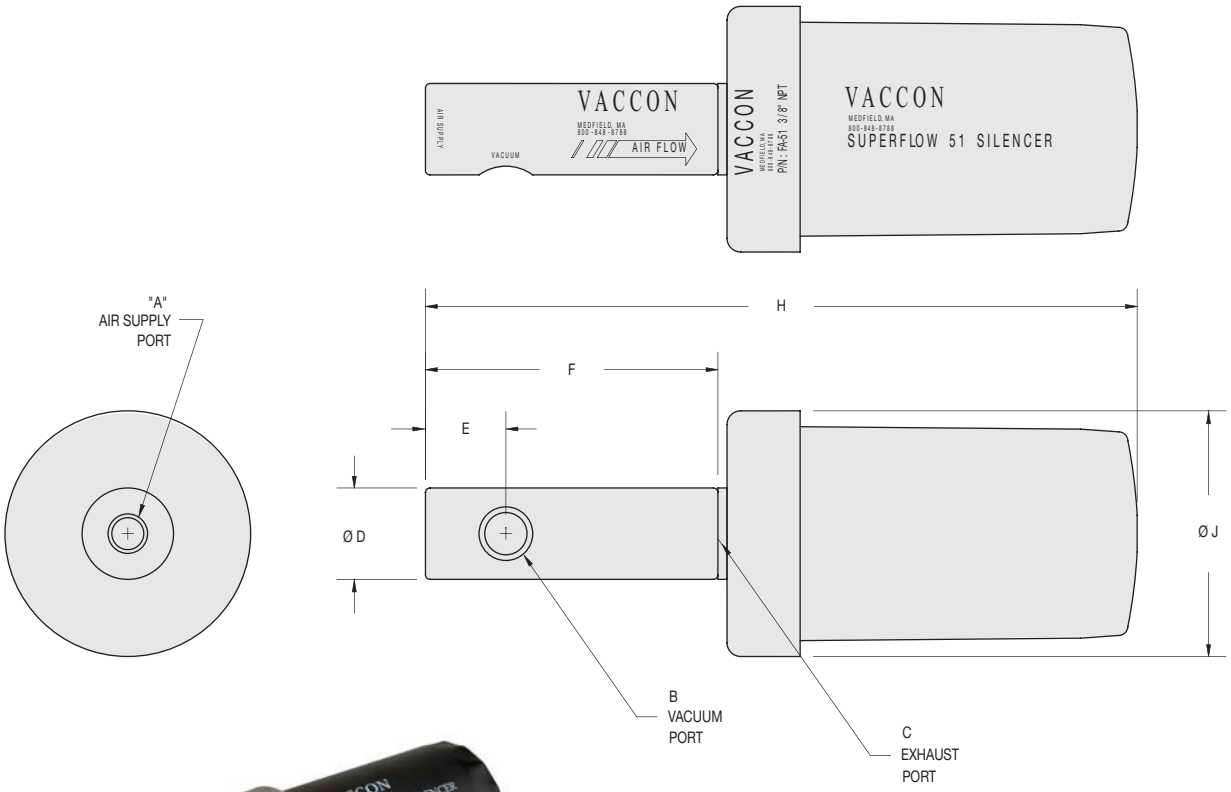


Specifications:

Weight: 8.7 oz [246.6g]
Noise Level: 66 dB

Model #	Imperial Dimensions (in.)							
	A	B	C	D	E	F	H	J
J (F, D, S) – (100, 150, 200) - STAA6	1/4 NPT F	3/8 NPT F	3/8 NPT F	1.25	1.10	4.00	9.05	1.00
Model #	**Metric Dimensions (mm)**							
	A	B	C	D	E	F	H	J
I- J (F, D, S) – (100, 150, 200) - STAA6	G 1/4	G 3/8	G 3/8	31.8	27.9	101.6	229.9	25.4

J (F, D, S) – (100, 150, 200, 250) Pump – Optional Silencer: FA-51-3/8



JS-250-FA-51-3/8

Specifications:

Weight: 1 lb. 4 oz [567g]
Noise Level: 72 dB

Model #	Imperial Dimensions (in.)							
	A	B	C	D	E	F	H	J
J (F, D, S) – (100-250) - FA-51-3/8	1/4 NPT F	3/8 NPT F	3/8 NPT F	1.25	1.10	4.00	9.74	3.36
Model #	**Metric Dimensions (mm)**							
	A	B	C	D	E	F	H	J
I-J (F, D, S) – (100-250) - FA-51-3/8	G 1/4	G 3/8	G 3/8	31.8	27.9	101.6	247.3	85.3

Note: RF-51 - Silencer replacement element available – see page 239.

Cylindrical Venturi Vacuum Pumps

Max J Series

Standard Pump:

The J-300 & 350 Series cylindrical venturi vacuum pumps offer higher vacuum flows for rapid evacuation of large vessels and to overcome leakage to sustain high vacuum levels while handling porous materials. Choose from 3 models that can generate up to 28"Hg [948mbar] and 28 SCFM [793LPM] of vacuum flow.

These high vacuum flow pumps are ideal for providing vacuum to large cups or a group of cups. When handling non-porous items like sheet metal, the J300 & 350 pumps provide rapid evacuation to reach vacuum quickly for very high-speed handling. When handling porous materials these pumps will overcome leakage and maintain a strong grip.

Lightweight, quiet and cool operating, J Series pumps are ideal for confined spaces, where they can be mounted in-line near the point of use for rapid response. The single-stage design allows ingested contaminants to flow through the pump without clogging ensuring continuous operation. Constructed of a single material, with no seals or moving parts, J Series pumps are virtually indestructible. They can be manufactured in a variety of materials, making them ideal for use in adverse operating conditions

J Series pumps provide a constant vacuum flow, rather than a fluctuating flow typically associated with diaphragm pumps. They operate with an instantaneous response in pulsed applications or on a continuous basis.

J Series pumps can be powered by alternate media (gases, liquids) etc. For liquid powered pumps please see our JW series on page 183.

Ideal Applications:

- Pick and place of large objects
- End-of-Arm Tooling / Robotics
- Vessel evacuation – molds/tanks/bottles/drums
- Packaging – bag/box/carton folding/handling
- Vacuum clamping/holding – fixtures, veneers
- Vacuum filling/bottling operations
- Food processing applications
- High temperature applications
- Caustic applications

Features/Benefits

- High performance – powerful vacuum up to 28"Hg [948mbar]
- Durable – rugged aluminum body construction
- Fast response – Mounts in-line, and installs close to vacuum point
- Efficient – Minimal air consumption, provides instantaneous vacuum as needed
- Safe operation – No electricity needed
- Reliable, trouble-free operation
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Performance Level Designation:

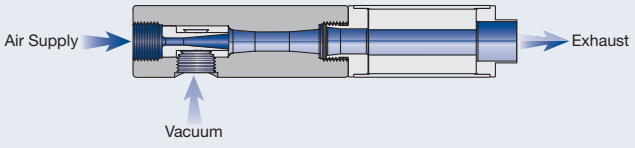
"JF" 0-10"Hg, [0 to 339mbar] for low vacuum / high flow applications
"JD" 0-20"Hg, [0 to 677mbar] for medium vacuum / high flow applications
"JS" 0-28"Hg, [0 to 948mbar] for high vacuum / standard flow applications

Pump Options:

- Silencers: ST6B & ST8B – straight-through silencer won't clog, and FA-51-3/8 & FA-51-1/2 for high flow applications
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures to meet machine and factory air requirements (80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional).
- For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin,™ Teflon,™ PVC.

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port located between the nozzle and diffuser.



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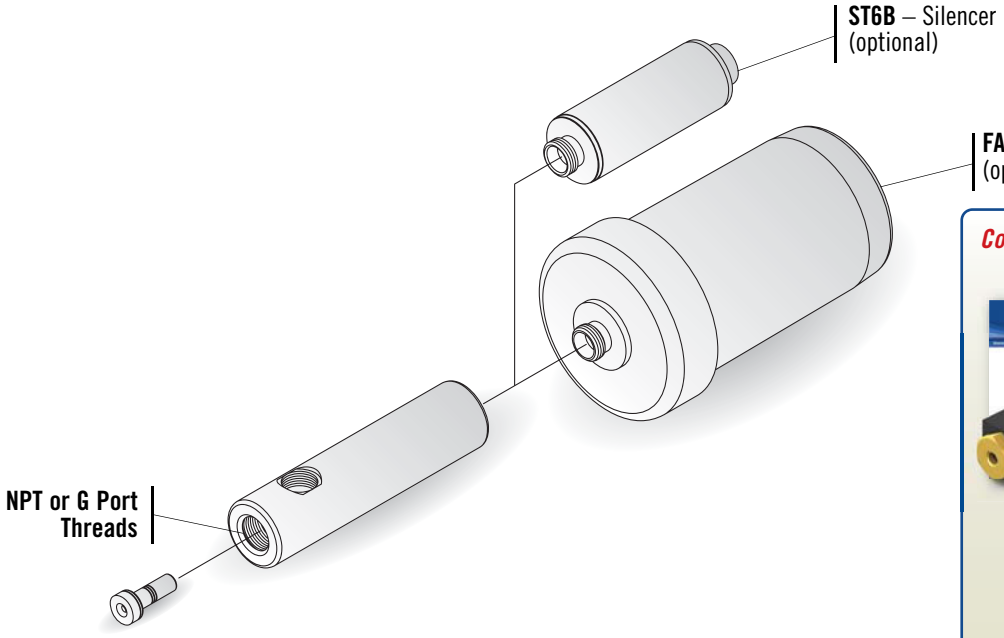
J (F, D, S)-300 Series – Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to Specify:

JS-300 - 60 - ST6B -

P/N	Thread	Max. Vac Level
JF-300	NPT	10"Hg [339mbar]
JD-300	NPT	20"Hg [677mbar]
JS-300	NPT	28"Hg [948mbar]
I-JF-300	G Port	10"Hg [339mbar]
I-JD-300	G Port	20"Hg [677mbar]
I-JS-300	G Port	28"Hg [948mbar]

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Standard)
60	60 PSI [4.0 BAR]

For complete Performance Data, see page 188.

P/N	Material
	Anodized Aluminum
303	303 Stainless Steel
304	304 Stainless Steel
316	316 Stainless Steel
316L	316 Low Carbon Stainless
PVC	PVC
TEF	PTFE
PK	PEEK
DEL	Acetal

P/N	Silencer*
	No Silencer (Standard)
ST6B	ST6B – Straight-Through
FA-51-3/8	FA-51-3/8 High Flow

*Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.

J 300 Cylindrical Vacuum Pump Standard Specifications:

Pump Material: Anodized Aluminum Standard (For silencer material - See page 235-239)

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -100°F~400°F [-73°~204°C] (without silencer)

Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

J 300 Cylindrical Vacuum Pump Operating and Installation Instructions:

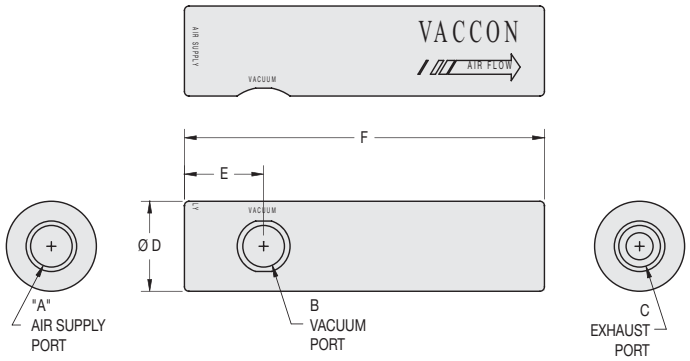
Supply Line: Minimum recommended – 1/2" O.D. [12mm] Preferred OD tubing

Vacuum Line: Minimum recommended – 1/2" O.D. [12mm] Preferred – 3/4" [19mm] OD for vacuum lines exceeding 3' [1M]

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF500F. See page 282.

Standard Pump: J (F, D, S) – 300

JD-300



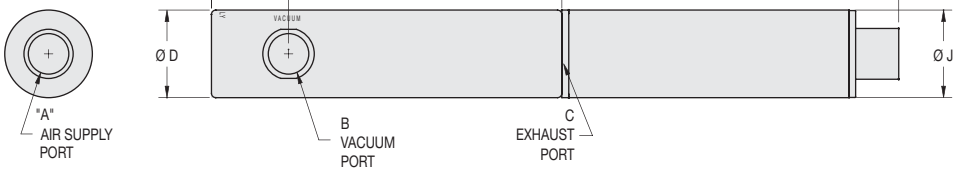
Specifications:

Weight: 8.5 oz [241g]
Noise Level: Vaccon highly recommends the use of silencers on all vacuum pumps unless the exhaust is being plumbed away.

Model #	Imperial Dimensions (in.)					
	A	B	C	D	E	F
J (F, D, S) – 300	3/8 NPT F	3/8 NPT F	3/8 NPT F	1.25	1.10	5.00
Model #	**Metric Dimensions (mm)**					
	A	B	C	D	E	F
I- J (F, D, S) – 300	G 3/8	G 3/8	G 3/8	31.8	27.9	127.0

J (F, D, S) – 300 Pump – Optional Silencer: ST6B

JS-300-ST6B

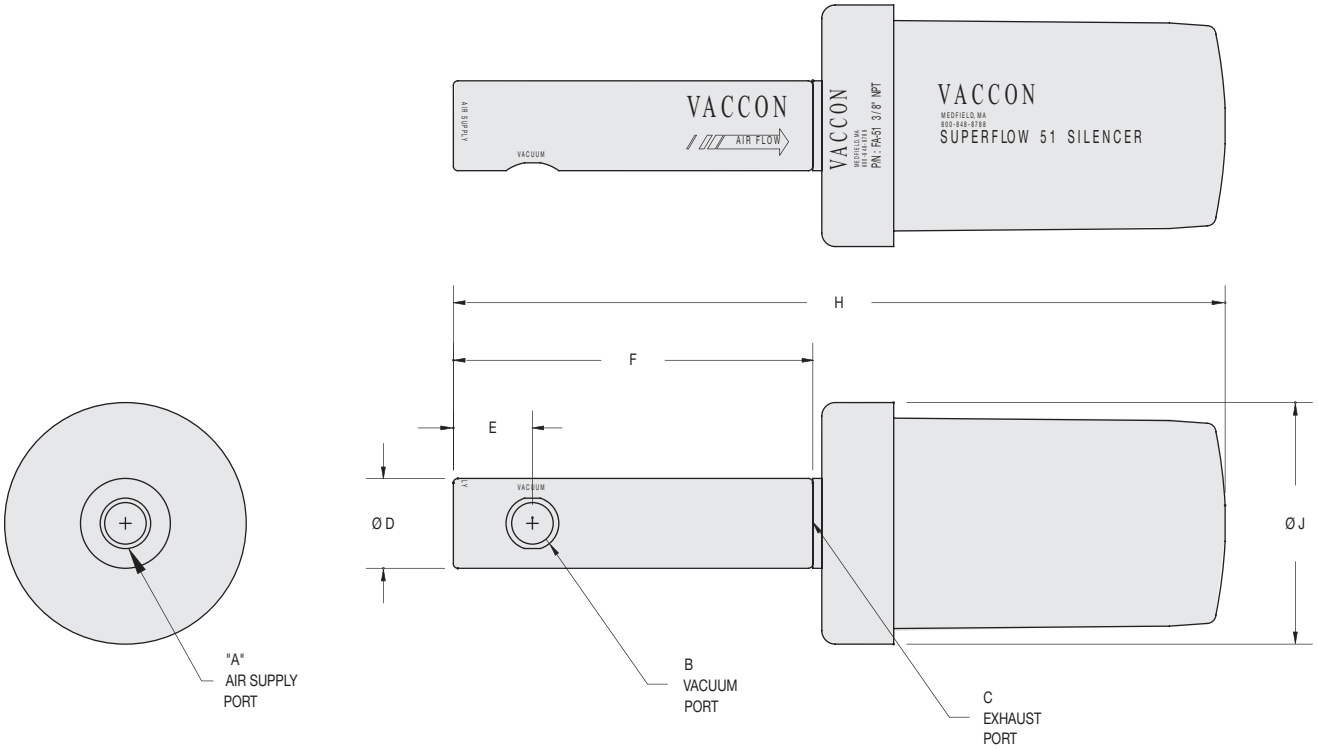


Specifications:

Weight: 12 oz [340g]
Noise Level: 72 dB

Model #	Imperial Dimensions (in.)							
	A	B	C	D	E	F	H	J
J (F, D, S) – 300 - ST6B	3/8 NPT F	3/8 NPT F	3/8 NPT F	1.25	1.10	5.00	9.81	1.25
Model #	**Metric Dimensions (mm)**							
	A	B	C	D	E	F	H	J
I-J (F, D, S) – 300 - ST6B	G 3/8	G 3/8	G 3/8	31.8	27.9	127.0	249.2	31.8

J (F, D, S) – 300 Pump – Optional Silencer: FA-51-3/8



JD-300-FA-51-3/8

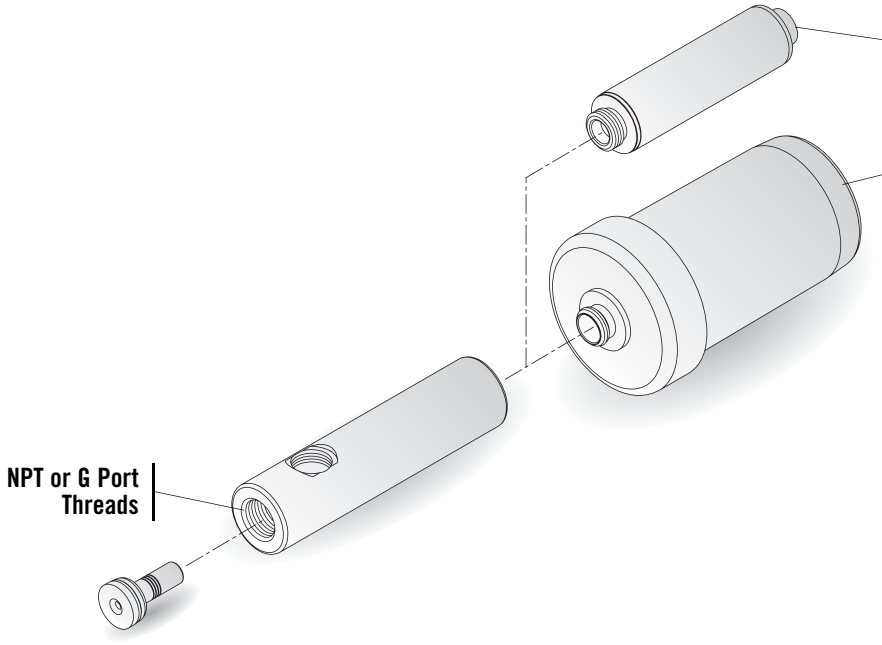
Specifications:

Weight 1 lb. 5 oz [598g]
Noise Level 72 dB

Model #	Imperial Dimensions (in.)							
	A	B	C	D	E	F	H	J
J (F, D, S) – 300 - FA-51-3/8	3/8 NPT F	3/8 NPT F	3/8 NPT F	1.25	1.10	5.00	10.74	3.36
Model #	**Metric Dimensions (mm)**							
	A	B	C	D	E	F	H	J
I-J (F, D, S) – 300 - FA-51-3/8	G 3/8	G 3/8	G 3/8	31.8	27.9	127.0	272.7	85.3

J (F, D, S)-350 Series – Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to Specify:

JS-350 - 60 - ST8B -

P/N	Thread	Max. Vac Level
JF-350	NPT	10"Hg [339mbar]
JD-350	NPT	20"Hg [677mbar]
JS-350	NPT	28"Hg [948mbar]
I-JF-350	G Port	10"Hg [339mbar]
I-JD-350	G Port	20"Hg [677mbar]
I-JS-350	G Port	28"Hg [948mbar]

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Standard)
60	60 PSI [4.0 BAR]

For complete Performance Data, see page 190.

P/N	Material
	Anodized Aluminum
303	303 Stainless Steel
304	304 Stainless Steel
316	316 Stainless Steel
316L	316 Low Carbon Stainless
PVC	PVC
TEF	PTFE
PK	PEEK
DEL	Acetal

P/N	Silencer*
	No Silencer (Standard)
ST8B	ST8B - Straight-through
FA-51-1/2	FA-51-1/2 High Flow

*Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.

J 350 Cylindrical Vacuum Pump Standard Specifications:

Pump Material: Anodized Aluminum Standard (For silencer material - See pages 235-239)

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -100°F~400°F [-73°~204°C] (without silencer)

Operating Pressure: 80 PSI [5.5 BAR] standard or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

J 350 Cylindrical Vacuum Pump Operating and Installation Instructions:

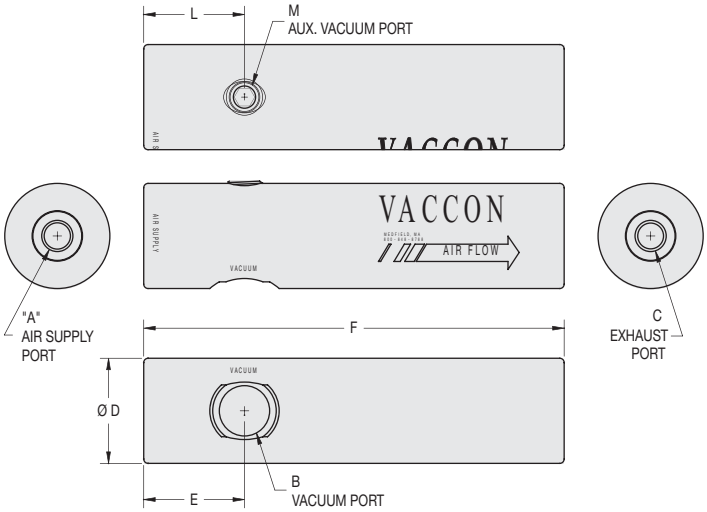
Supply Line: Minimum recommended – 1/2" O.D. [12mm] Preferred OD tubing

Vacuum Line: Minimum recommended – 1/2" O.D. [12mm] Preferred – 3/4" [19mm] OD for vacuum lines exceeding 3' [1M]

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF500F. See page 282.

Standard Pump: J (F, D, S) – 350

JS-350



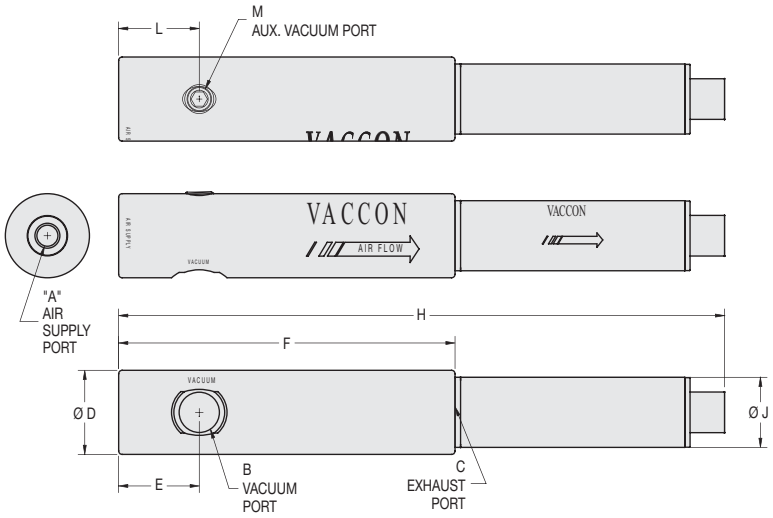
Specifications:

Weight 15 oz [425g]
Noise Level Vaccon highly recommends the use of silencers on all vacuum pumps unless the exhaust is being plumbed away.

Model #	Imperial Dimensions (in.)										
	A	B	C	D	E	F	H	J	K	L	M
J (F, D, S) – 350	1/2 NPT F	1/2 NPT F	1/2 NPT F	1.50	1.44	6.00	–	–	–	1.44	1/4 NPT F
Model #	**Metric Dimensions (mm)**										
	A	B	C	D	E	F	H	J	K	L	M
I- J (F, D, S) – 350	G 1/2	G 1/2	G 1/2	38.1	36.5	152.4	–	–	–	36.6	G 1/4

J (F, D, S) – 350 Pump – Optional Silencer: ST8B

JS-350-ST8B

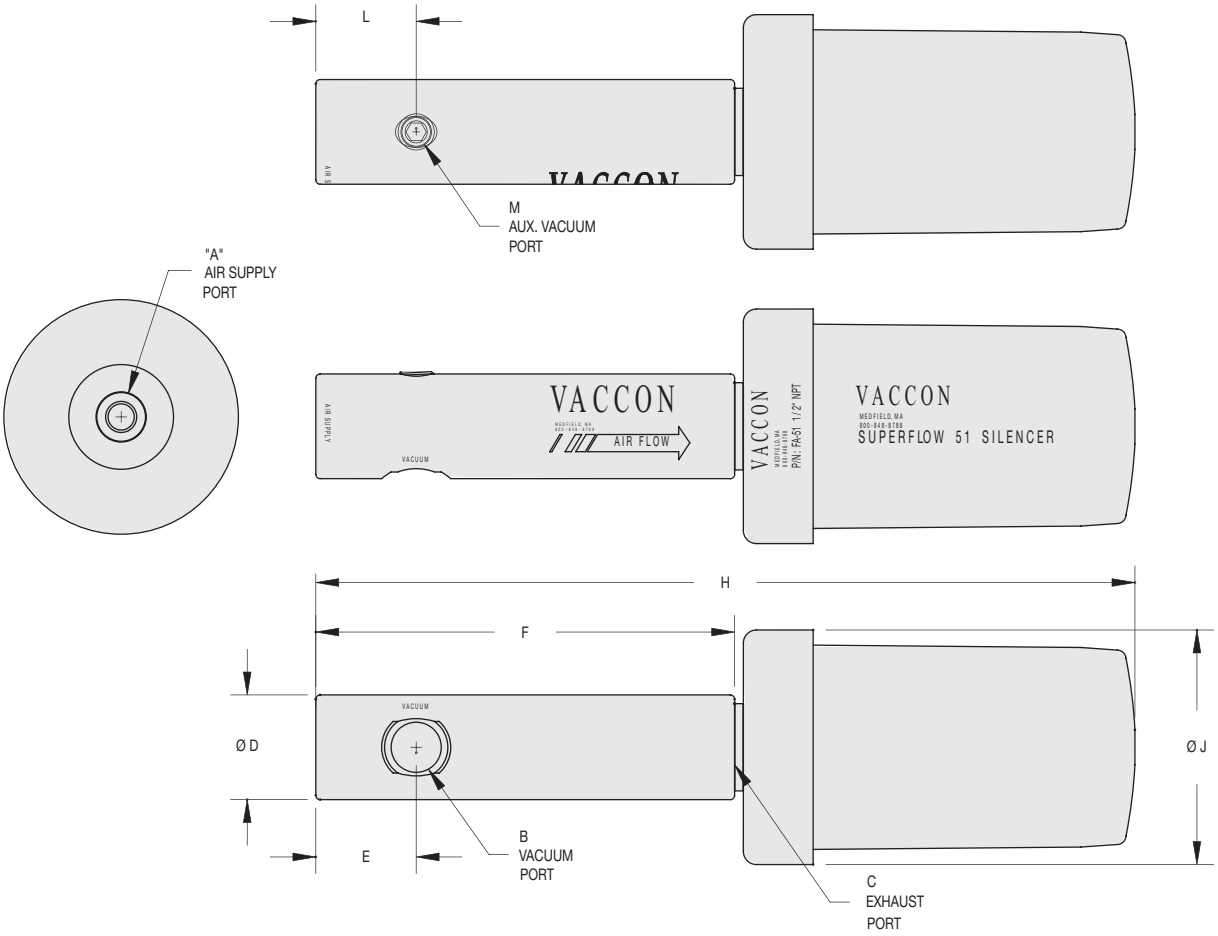


Specifications:

Weight 1 lb 2 oz [510g]
Noise Level 76 dB

Model #	Imperial Dimensions (in.)										
	A	B	C	D	E	F	H	J	K	L	M
J (F, D, S) – 350-ST8B	1/2 NPT F	1/2 NPT F	1/2 NPT F	1.50	1.44	6.00	10.81	1.25	–	1.44	1/4 NPT F
Model #	**Metric Dimensions (mm)**										
	A	B	C	D	E	F	H	J	K	L	M
I-J (F, D, S) – 350-ST8B	G 1/2	G 1/2	G 1/2	38.1	36.5	152.4	274.6	31.8	–	36.5	G 1/4

J (F, D, S) – 350 Pump – Optional Silencer: FA-51-3/8



JD-350-FA-51-1/2

Specifications:

Weight 1 lb 11 oz [765g]
Noise Level 74 db

Model #	Imperial Dimensions (in.)										
	A	B	C	D	E	F	H	J	K	L	M
J (F, D, S) – 350 - FA-51-1/2	1/2 NPT F	1/2 NPT F	1/2 NPT F	1.50	1.44	6.00	11.74	3.36	–	1.44	1/4 NPT F
Model #	**Metric Dimensions (mm)**										
	A	B	C	D	E	F	H	J	K	L	M
I-J(F, D, S) – 350 - FA-51-1/2	G 1/2	G 1/2	G 1/2	38.1	36.5	152.4	298.1	85.3	–	36.5	G 1/4

Custom Venturi Vacuum Pumps – J Series

Ideal for OEM engineers and designers

Creative Engineering • Precision Manufacturing • Extensive Application Experience

When off the shelf doesn't work, Vaccon's engineering expertise and manufacturing capabilities can provide custom solutions to your specifications.

Whether it's as simple as modifying a standard product, or more complex requiring new products with specific features, or special materials, Vaccon has the solution.

All the pumps shown offer the exact same performance but were made to fit a specific application or machine footprint.

Custom Materials Available: Brass, Stainless Steel, PVC, Peek, PTFE-(Teflon™), Acetal-(Delrin™). Consult factory.

Stainless steel pumps used for filling IV bags with de-ionized water, or corrosive materials.

Custom designed JS-60M-316 stainless steel with butt weld connection for evacuating argon gas for the semiconductor industry.

When size, shape, material and performance matter, it's Vaccon Vacuum Pumps.

Phone: **1-800-848-8788** or **508-359-7200** E-Mail: **engineering@vaccon.com**

Liquid Powered Venturi Vacuum Pumps

JW Series

Custom designed JW pump made of acetal for mixing water and fruit juice to a specific ratio.

Ideal Applications:

- Liquid transfer
- Degassing in reverse osmosis filtration
- Mixing
- Extracting solvents
- Dilution
- Well evacuation

Features/Benefits

- High Performance - powerful vacuum up to 29.5"Hg [990mbar]
- Instantaneous response
- Constant vacuum flow
- Consistent smooth transference
- Customized performance and configuration
- Safe operation – no electricity needed
- Reliable, trouble-free operation
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Standard Pump:

The powerful JW Series liquid-powered venturi vacuum pumps generate vacuum levels up to 29.5"Hg [990mbar] at pressures as low as 40 PSI [2.5 Bar].

All JW pumps are custom designed and manufactured to meet specific customer application requirements for operating pressure, liquid consumption, vacuum flow, and vacuum level with a maximum water lift of 32 feet [8.4M].

Generating near perfect vacuum, JW pumps are recommended for degassing, reverse osmosis water columns, mixing liquids with fruit juice concentrates or chemicals for dilution, blending liquids and slurries, extracting solvents, producing emulsions, elevating water, cleaning liquid transfer lines, evacuating liquids from wells or sumps and to circulate pump solutions.

Using a manual or automatic control valve, JW pumps provide an instantaneous response in pulsed applications. They deliver a constant vacuum flow rather than a fluctuating flow typically associated with diaphragm pumps for smooth, consistent liquid transference.

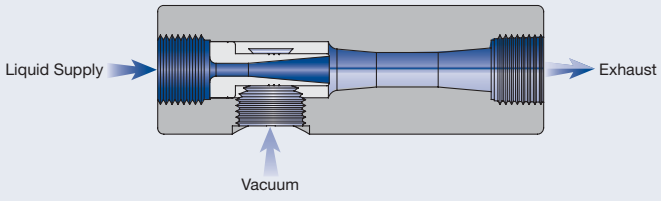
JW Series pumps offer a press-fit nozzle design eliminating o'rings or seals making them ideal for use with corrosive materials and adverse operating conditions.

Pump Options:

- G port threads for metric machines – an "I" prefix designates products with metric threads
- For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin,™ Teflon,™ PVC.

Principles of Operation:

Vacuum is produced by forcing liquid through a limiting orifice (nozzle). As the liquid exits the orifice it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port located between the nozzle and diffuser.



Eliminate the Guesswork: Contact Us!

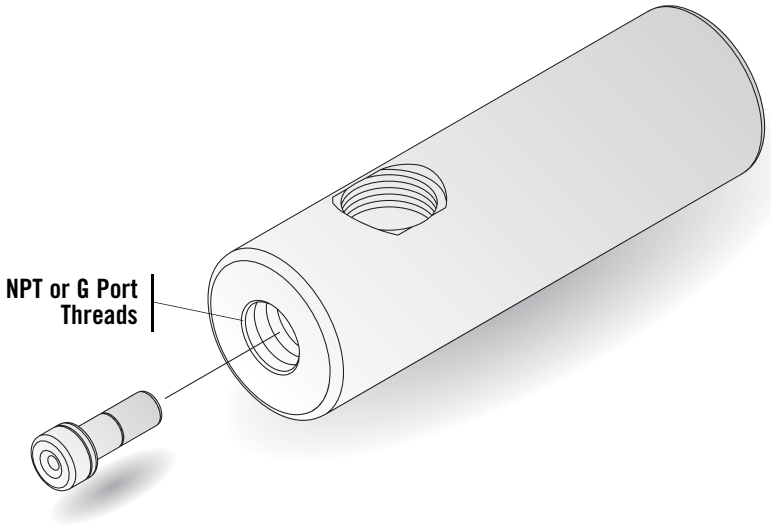
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

JW Series – Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to Specify:

JW-200 - 60 - PVC

P/N	
Imperial (NPT)	**Metric (G Port)**
JW-40UM	I-JW-40UM
JW-60M	I-JW-60M
JW-90M	I-JW-90M
JW-100M	I-JW-100M
JW-150M	I-JW-150M
JW-100	I-JW-100
JW-150	I-JW-150
JW-200	I-JW-200
JW-250	I-JW-250
JW-300	I-JW-300
JW-350	I-JW-350

P/N	Material
	Anodized Aluminum
303	303 Stainless Steel
304	304 Stainless Steel
316	316 Stainless Steel
316L	316 Low Carbon Stainless
PVC	PVC
TEF	PTFE
PK	PEEK
DEL	Acetal

P/N	Operating Pressure
XX	Determined based on customer application. Please consult factory.

JW Series Cylindrical Vacuum Pump Standard Specifications:

Pump Material: Anodized Aluminum Standard

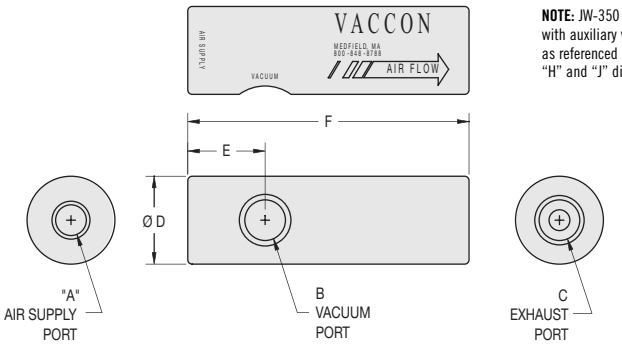
Medium: Liquid

Operating Temperature: -100°F~400°F [-73°~204°C]

Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

Standard Pump – JW Pump

JW-100



NOTE: JW-350 only pump with auxiliary vacuum port as referenced in drawing "H" and "J" dimension.

Model #	Imperial Dimensions (in.)								
	A	B	C	D	E	F	H	J	Weight
JW-40UM	10-32 F	10-32 F	10-32 F	0.56	0.50	1.25	N/A	N/A	0.3 oz
JW- (60M, 90M, 100M, 150M)	1/8 NPT F	1/8 NPT F	1/4 NPT F	0.75	0.75	2.75	N/A	N/A	1.7 oz
JW- (100, 150, 200, 250)	1/4 NPT F	3/8 NPT F	3/8 NPT F	1.25	1.10	4.00	N/A	N/A	6.9 oz
JW-300	3/8 NPT F	3/8 NPT F	3/8 NPT F	1.25	1.10	5.00	N/A	N/A	8.5 oz
JW-350	1/2 NPT F	1/2 NPT F	1/2 NPT F	1.50	1.44	6.00	1.44	1/4 NPT F	15 oz
Model #	**Metric Dimensions (mm)**								
	A	B	C	D	E	F	H	J	Weight
I-JW-40UM	M5	M5	M5	14.2	12.7	31.8	N/A	N/A	8.6 g
I-JW-(60M, 90M, 100M, 150M)	G 1/8	G 1/8	G 1/4	19.1	19.1	69.9	N/A	N/A	48.2 g
I-JW-(100, 150, 200, 250)	G 1/4	G 3/8	G 3/8	31.8	27.9	101.6	N/A	N/A	195.6 g
I-JW-300	G 3/8	G 3/8	G 3/8	31.8	27.9	127.0	N/A	N/A	241 g
I-JW-350	G 1/2	G 1/2	G 1/2	38.1	36.6	152.4	36.6	G 1/4	425 g

All JW Series vacuum pumps are custom made. Please contact Vaccon Engineering for design assistance, drawings and performance data.

Specialty Materials Shown: 303, 304, 316 and 316L Stainless steel, PVC, PTFE, Acetal, PEEK and more.

Custom product: JW-60M water pump made of PVC.

Performance Data for JF Series Pumps

F-Series Venturis – Low Vacuum Applications

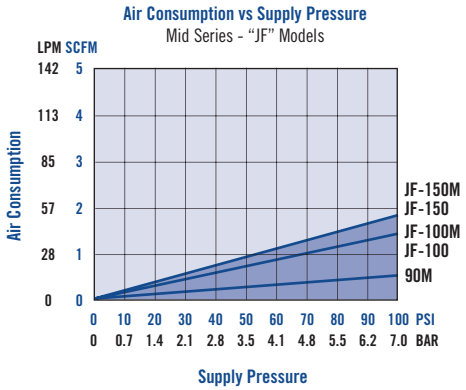
F is for "Low" vacuum levels up to 10"Hg [339mbar] for handling delicate parts, thin walled materials and for process control applications.

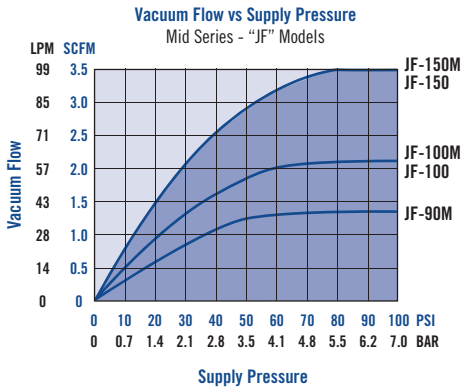
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)				
		0"Hg	3"Hg	6"Hg	9"Hg	10"Hg
JF-90M	0.50	1.30	1.10	0.70	0.20	0.00
JF-100M	1.40	2.10	1.60	1.10	0.50	0.00
JF-100						
JF-150M	1.80	3.50	2.50	1.90	0.70	0.00
JF-150						
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**				
		0"Hg	3"Hg	6"Hg	9"Hg	10"Hg
JF-90M		0.00	3.26	7.93	18.65	39.63
JF-100M		0.00	2.33	4.66	10.88	24.09
JF-100						
JF-150M		0.00	2.05	4.62	11.80	22.80
JF-150						

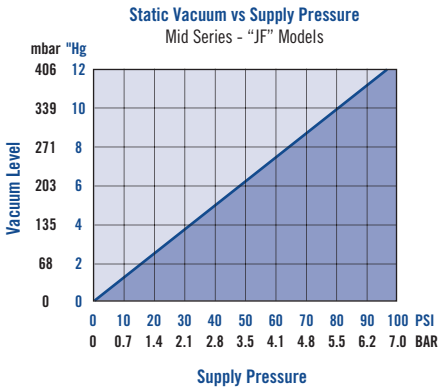
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)				
		0mbar	102mbar	203mbar	305mbar	339mbar
JF-90M	14.2	36.8	31.1	19.8	5.7	0.0
JF-100M	39.6	59.5	45.3	31.1	14.2	0.0
JF-100						
JF-150M	51.0	99.1	70.8	53.8	19.8	0.0
JF-150						
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**				
		0mbar	102mbar	203mbar	305mbar	339mbar
JF-90M		0.0	0.1	0.3	0.7	1.4
JF-100M		0.0	0.1	0.2	0.4	0.9
JF-100						
JF-150M		0.0	0.1	0.2	0.4	0.8
JF-150						

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for JF Series Pumps

F-Series Venturis – Low Vacuum Applications

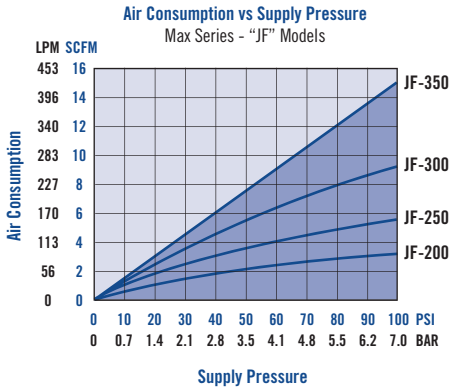
F is for "Low" vacuum levels up to 10"Hg [339mbar] for handling delicate parts, thin walled materials and for process control applications.

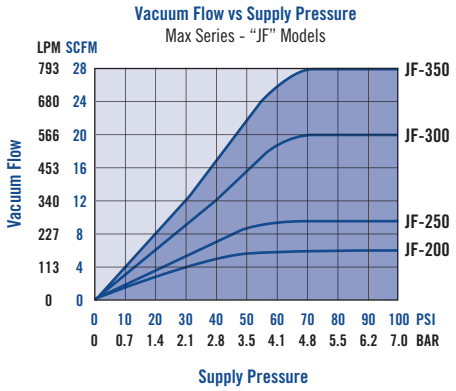
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)				
		0"Hg	3"Hg	6"Hg	9"Hg	10"Hg
JF-200	2.80	6.00	5.80	4.30	1.70	0.00
JF-250	4.80	9.50	7.90	5.70	2.20	0.00
JF-300	7.80	20.00	14.00	9.50	3.50	0.00
JF-350	12.50	28.00	18.00	12.30	4.50	0.00
Model #		Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg				
		0"Hg	3"Hg	6"Hg	9"Hg	10"Hg
JF-200		0.00	0.77	2.05	4.62	13.34
JF-250		0.00	0.52	1.28	3.08	7.95
JF-300		0.00	0.26	0.77	1.80	4.10
JF-350		0.00	0.00	0.52	1.28	2.82

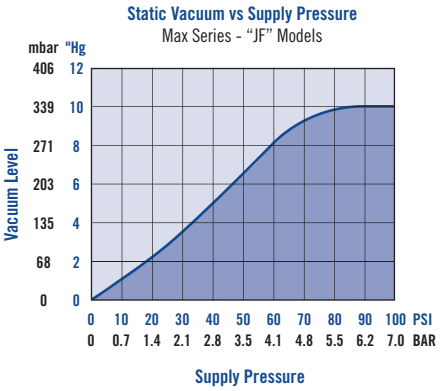
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)				
		0mbar	102mbar	203mbar	305mbar	339mbar
JF-200	79.3	169.9	164.2	121.8	48.1	0.0
JF-250	135.9	269.0	223.7	161.4	62.3	0.0
JF-300	220.9	566.3	396.4	269.0	99.1	0.0
JF-350	354.0	792.9	509.7	348.3	127.4	0.0
Model #		Evacuation Time in Seconds based on 1 Liter Volume/mbar				
		0mbar	102mbar	203mbar	305mbar	339mbar
JF-200		0.0	0.0	0.1	0.2	0.5
JF-250		0.0	0.0	0.0	0.1	0.3
JF-300		0.0	0.0	0.0	0.1	0.1
JF-350		0.0	0.0	0.0	0.0	0.1

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for JD Series Pumps

D-Series Venturis – Medium Vacuum Applications

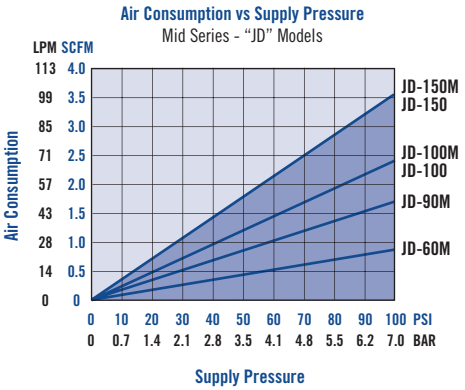
D is for "Medium" vacuum levels up to 20"Hg [667mbar] for applications involving porous materials (cardboard, wood, masonry, baked goods, textiles)

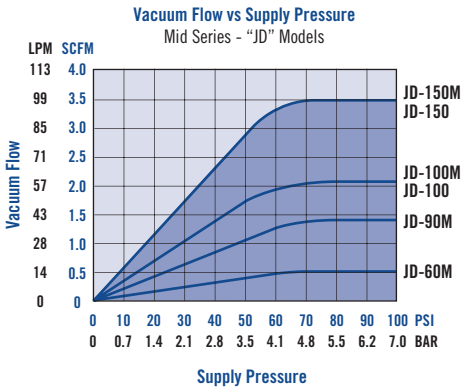
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
JD-60M	0.50	0.50	0.40	0.30	0.22	0.15	0.08	0.03	0.00
JD-90M	1.40	1.40	1.25	1.20	1.05	0.85	0.65	0.25	0.00
JD-100M	1.80	2.10	2.00	1.85	1.75	1.60	1.25	0.80	0.00
JD-100									
JD-150M	2.80	3.50	3.20	2.95	2.75	2.50	1.80	0.95	0.00
JD-150									
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
JD-60M		0.00	12.50	25.10	43.90	68.60	99.30	153.70	227.00
JD-90M		0.00	3.75	7.20	12.40	19.10	29.90	52.00	104.00
JD-100M		0.00	2.65	5.80	9.90	16.20	22.90	36.20	56.60
JD-100									
JD-150M		0.00	1.35	3.20	5.20	7.70	11.80	23.40	52.00
JD-150									

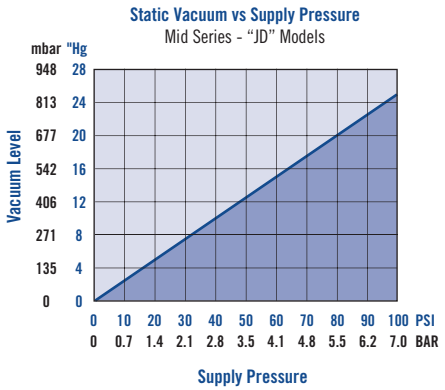
Model #	Air Consumption LPM	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)							
		0mbar	102mbar	203mbar	305mbar	406mbar	508mbar	609mbar	677mbar
JD-60M	14.2	14.2	11.3	8.5	6.2	4.2	2.3	0.8	0.0
JD-90M	39.6	39.6	35.4	34.0	29.7	24.1	18.4	7.1	0.0
JD-100M	51.0	59.5	56.6	52.4	49.6	45.3	35.4	22.7	0.0
JD-100									
JD-150M	79.3	99.1	90.6	83.5	77.9	70.8	51.0	26.9	0.0
JD-150									
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**							
		0mbar	102mbar	203mbar	305mbar	406mbar	508mbar	609mbar	677mbar
JD-60M		0.0	0.4	0.9	1.6	2.4	3.5	5.4	8.0
JD-90M		0.0	0.1	0.3	0.4	0.7	1.1	1.8	3.7
JD-100M		0.0	0.1	0.2	0.3	0.6	0.8	1.3	2.0
JD-100									
JD-150M		0.0	0.0	0.1	0.2	0.3	0.4	0.8	1.8
JD-150									

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data - J Pumps

Performance Data for JD Series Pumps

D-Series Venturis – Medium Vacuum Applications

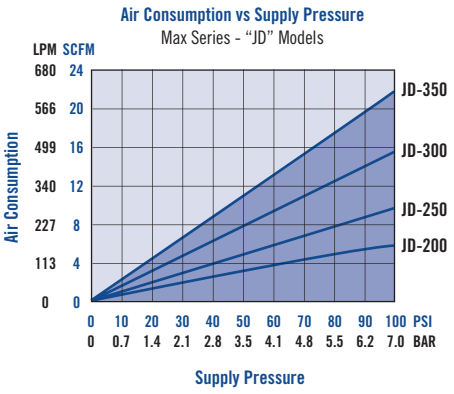
D is for "Medium" vacuum levels up to 20"Hg [667mbar] for applications involving porous materials (cardboard, wood, masonry, baked goods, textiles)

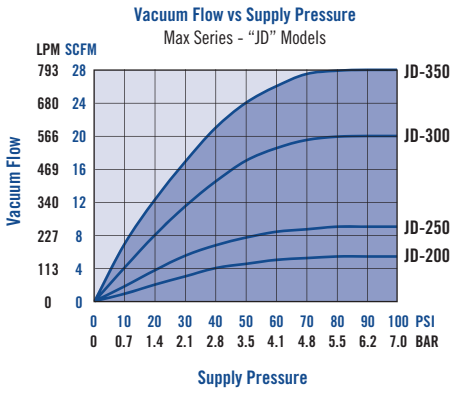
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
JD-200	4.80	6.00	5.30	4.90	4.00	3.50	2.50	1.10	0.00
JD-250	7.80	9.50	9.20	8.30	7.00	4.70	3.40	2.20	0.00
JD-300	12.50	20.00	19.00	16.30	13.80	8.10	5.50	3.30	0.00
JD-350	22.00	28.00	24.00	19.40	16.80	14.50	11.20	4.80	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**							
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	20"Hg
JD-200		0.00	0.75	1.90	3.20	5.30	8.70	17.10	42.60
JD-250		0.00	0.45	1.10	2.40	3.80	6.00	9.70	15.40
JD-300		0.00	0.00	0.00	1.10	1.80	2.70	4.60	8.70
JD-350		0.00	0.00	0.00	1.00	1.50	2.10	4.30	8.40

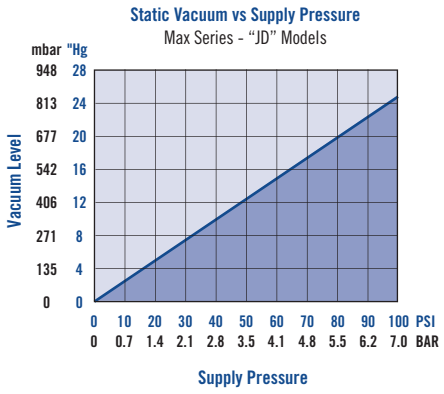
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)							
		0mbar	102mbar	203mbar	305mbar	406mbar	508mbar	609mbar	677mbar
JD-200	135.9	169.9	150.1	138.8	113.3	99.1	70.8	31.1	0.0
JD-250	220.9	269.0	260.5	235.0	198.2	133.1	96.3	62.3	0.0
JD-300	354.0	566.3	538.0	461.6	390.8	229.4	155.7	93.4	0.0
JD-350	623.0	792.9	679.6	549.3	475.7	410.6	317.1	135.9	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**							
		0mbar	102mbar	203mbar	305mbar	406mbar	508mbar	609mbar	677mbar
JD-200		0.0	0.0	0.1	0.1	0.2	0.3	0.6	1.5
JD-250		0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.5
JD-300		0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3
JD-350		0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for JS Series Pumps

S-Series Venturis – High Vacuum Applications

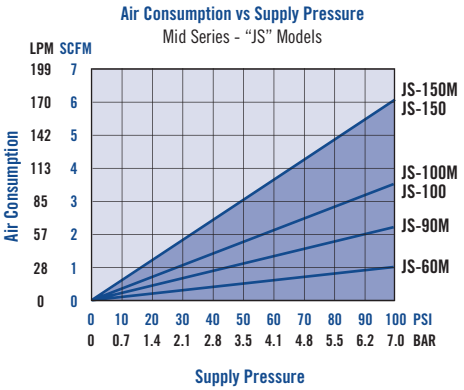
S is for "High" vacuum levels up to 28"Hg [948mbar] for applications involving non-porous materials (steel, plastic, glass, etc.)

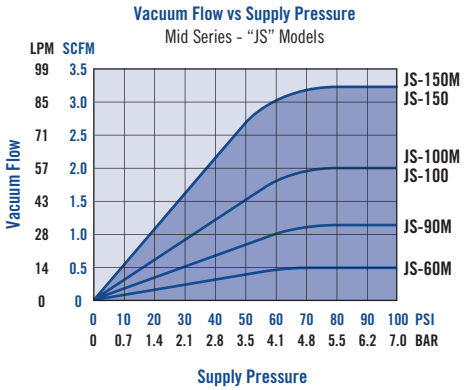
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27 Hg	28"Hg
JS-60M	0.80	0.50	0.38	0.32	0.30	0.27	0.23	0.20	0.13	0.05	0.02	0.00
JS-90M	1.80	1.20	1.00	0.95	0.90	0.85	0.75	0.70	0.52	0.47	0.20	0.00
JS-100M JS-100	2.80	2.00	1.85	1.75	1.57	1.40	1.25	1.05	0.84	0.70	0.35	0.00
JS-150M JS-150	4.80	3.20	2.80	2.50	2.30	2.00	1.60	1.40	1.20	0.80	0.50	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	28"Hg
JS-60M		0.00	15.00	29.80	50.60	74.50	102.80	135.90	183.20	245.90	410.20	790.80
JS-90M		0.00	6.50	12.30	18.90	32.50	47.00	65.40	92.20	130.00	222.20	281.30
JS-100M JS-100		0.00	2.70	6.50	11.20	17.50	25.80	38.40	55.20	79.20	166.70	251.80
JS-150M JS-150		0.00	2.30	3.80	6.50	10.20	14.20	21.30	44.90	55.00	81.00	125.00

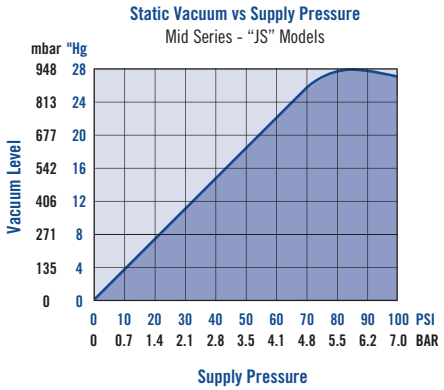
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)										
		0mbar	102mbar	203mbar	305mbar	406mbar	508mbar	609mbar	711mbar	813mbar	914mbar	948mbar
JS-60M	22.7	14.2	10.8	9.1	8.5	7.6	6.5	5.7	3.7	1.4	0.6	0.0
JS-90M	51.0	34.0	28.3	26.9	25.5	24.1	21.2	19.8	14.7	13.3	5.7	0.0
JS-100M JS-100	79.3	56.6	52.4	49.6	44.5	39.6	35.4	29.7	23.8	19.8	9.9	0.0
JS-150M JS-150	135.9	90.6	79.3	70.8	65.1	56.6	45.3	39.6	34.0	22.7	14.2	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**										
		0mbar	102mbar	203mbar	305mbar	406mbar	508mbar	609mbar	711mbar	813mbar	914mbar	948mbar
JS-60M		0.0	0.5	1.1	1.8	2.6	3.6	4.8	6.5	8.7	14.5	27.9
JS-90M		0.0	0.2	0.4	0.7	1.1	1.7	2.3	3.3	4.6	7.8	9.9
JS-100M JS-100		0.0	0.1	0.2	0.4	0.6	0.9	1.4	1.9	2.8	5.9	8.9
JS-150M JS-150		0.0	0.1	0.1	0.2	0.4	0.5	0.8	1.6	1.9	2.9	4.4

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Performance Data for JS Series Pumps

S-Series Venturis – High Vacuum Applications

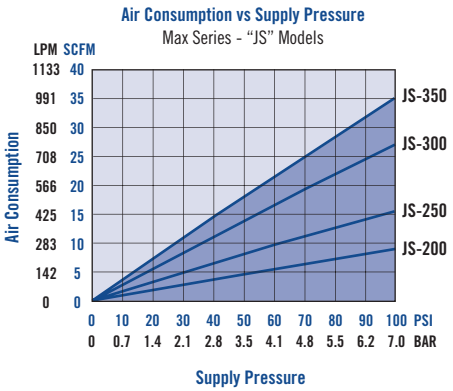
S is for "High" vacuum levels up to 28"Hg [948mbar] for applications involving non-porous materials (steel, plastic, glass, etc.)

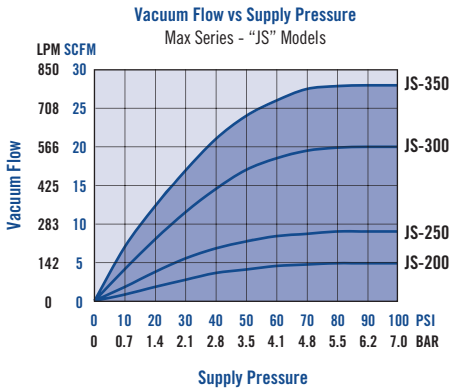
Model #	Air Consumption SCFM	Imperial – Vacuum Flow (SCFM) vs. Vacuum Level ("Hg)										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	28"Hg
JS-200	7.80	5.40	4.70	3.85	3.30	3.00	2.60	2.10	1.60	1.20	0.60	0.00
JS-250	12.50	9.00	8.50	7.85	7.00	6.50	5.30	3.90	2.50	1.80	0.90	0.00
JS-300	22.00	20.00	17.00	14.00	12.70	12.00	10.00	7.40	4.90	2.70	1.30	0.00
JS-350	28.00	28.00	22.00	18.70	15.90	14.50	11.80	8.10	5.70	4.50	2.25	0.00
Model #		**Evacuation Time in Seconds based on 1 Cubic Foot Volume/"Hg**										
		0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	27"Hg	28"Hg
JS-200		0.00	1.20	2.10	3.40	5.20	7.70	11.50	20.00	33.50	62.60	98.10
JS-250		0.00	0.75	1.30	2.20	3.50	5.60	9.10	17.40	30.10	56.00	76.00
JS-300		0.00	0.00	0.80	1.20	2.00	2.80	3.90	5.90	11.10	32.70	60.00
JS-350		0.00	0.00	0.00	1.20	1.90	2.30	3.40	5.30	8.80	26.00	44.00

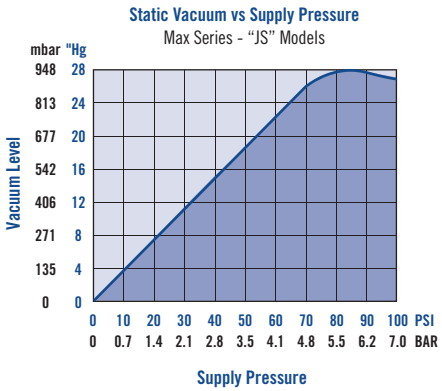
Model #	Air Consumption L/min	Metric – Vacuum Flow (L/min) vs. Vacuum Level (mbar)										
		0mbar	102mbar	203mbar	305mbar	406mbar	508mbar	609mbar	711mbar	814mbar	914mbar	948mbar
JS-200	220.9	152.9	133.1	109.0	93.4	85.0	73.6	59.5	45.3	34.0	17.0	0.0
JS-250	354.0	254.9	240.7	222.3	198.2	184.1	150.1	110.4	70.8	51.0	25.5	0.0
JS-300	623.0	566.3	481.4	396.4	359.6	339.8	238.2	209.5	138.8	76.5	36.8	0.0
JS-350	792.9	792.9	623.0	529.5	450.2	410.6	334.1	229.4	161.4	127.4	63.7	0.0
Model #		**Evacuation Time in Seconds based on 1 Liter Volume/mbar**										
		0mbar	102mbar	203mbar	305mbar	406mbar	508mbar	609mbar	711mbar	814mbar	914mbar	948mbar
JS-200		0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.7	1.2	2.2	3.5
JS-250		0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.6	1.1	2.0	2.7
JS-300		0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.4	1.2	2.1
JS-350		0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.9	1.6

Note 1: Standard operating pressure for Vaccon pumps is 80 PSI [5.5BAR]. Pumps can be factory modified to run at other operating pressures i.e. 60 PSI [4 BAR] etc. The values shown in the performance chart will remain the same for all operating pressures.

Note 2: Evacuation speed is linear with volume, a 2 cu. ft. volume will take twice as long to evacuate as a one cu. ft. volume.







Inline Venturi Vacuum Pump

VPI-90H Pump

VPI-90H densely populated robotic arm with vacuum cups for material handling applications

VPI-90H

Ideal Applications:

- Pick and place
- Bottling
- Packaging
- Palletizing
- Robotic/End-of-Arm tooling

Features/Benefits:

- High performance – powerful vacuum up to 28"Hg [948mbar]
- Push-to-connect air supply fitting
- Allows multi-populated boards – dense formations
- Fast response – installs close to vacuum point
- Efficient – minimal air consumption
- Easy to install – compact & lightweight, simple mounting, saves plumbing
- Safe operation – no electricity needed at the pump
- Reliable, trouble-free operation
  - ~ No moving parts to wear
  - ~ No flap valves to stick open
  - ~ No maintenance
  - ~ No downtime

Standard Pump:

Unlike standard venturi vacuum pumps where the vacuum port is 90° from the supply port, Vaccon's air-powered VPI-90H inline venturi vacuum pumps feature an air-supply port and vacuum port on the same axis to consolidate space.

VPI-90H pumps vertically mount to robotic arms to create single or densely populated arrays of pump/cup combinations to accommodate and lift products of any size, shape, or weight.

Internal threads on the vacuum port enable vacuum cups to connect directly to the pump while the external threads attach directly to the end of arm tool. VPI-90H's feature an additional vacuum port for a vacuum switch/sensor to ensure accurate part detection or for a connection to an externally supplied blow-off.

Performance Level Designations:

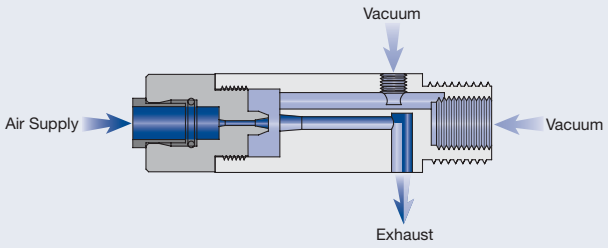
"**H**" 0-28"Hg, [0 to 948mbar] for high vacuum/standard flow applications

Pump Options:

- Choice of operating pressures to meet machine and factory air requirements (80 PSI [5.5 BAR] standard, 60 PSI [4.0 BAR] optional).
- Auxiliary port for optional vacuum sensor or switch with or without quick disconnect
- Auxiliary port for optional externally supplied blow-off
- Optional jam nut for ease of mounting

Principles of Operation:

Vacuum is produced by forcing compressed air through a limiting orifice (nozzle). As the air exits the orifice it expands, increasing in velocity to supersonic speed before entering the venturi section (diffuser). This creates a vacuum at the vacuum inlet port located between the nozzle and diffuser. Combined, the nozzle and diffuser create a venturi vacuum cartridge.



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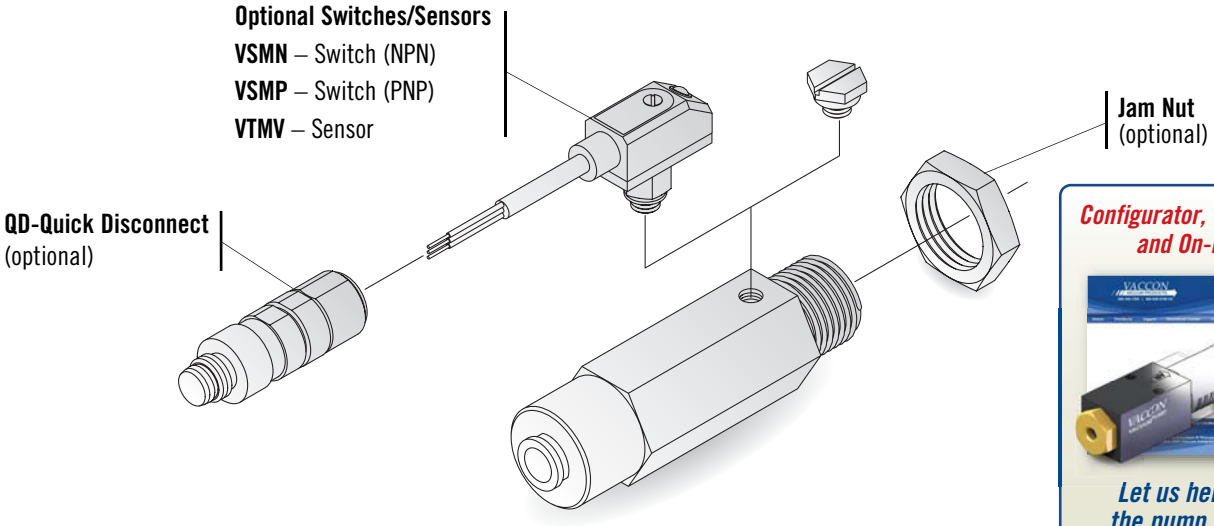
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

VPI-90H Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to Specify:

VPI-90H - 60 - JN - VSMP-QD

P/N	Thread	Max Vac Level
VPI-90H	NPT	28"Hg [948mbar]

P/N	Operating Pressure
	80 PSI [5.5 BAR] (Standard)
60	60 PSI [4.0 BAR]

P/N	Jam Nut
	None (Standard)
JN	Jam Nut

P/N	Switch/Sensor
	None (Standard)
VSMN	Switch – NPN
VSMP	Switch – PNP
VTMV	Sensor 0-5vDC Output
VSMN-QD	Switch w/Quick Disconnect
VSMP-QD	Switch w/Quick Disconnect
VTMV-QD	Sensor w/Quick Disconnect

For complete Performance Data, see page 152 – Equivalent to a VP10-90H.

VPI-90H Inline Pump Standard Specifications:

Pump Material: Anodized Aluminum Buna-N O-ring, Nylon

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -30°~250° F [-34°~121°C]

Operating Pressure: 80 PSI [5.5 BAR] or 60 PSI [4.0 BAR] – Consult Factory for other operating pressures

VPI-90H Inline Pump Operating and Installation Instructions:

Supply Line: Preferred 1/4" OD tubing [6mm]

Control Valve: 3-way/2 position (faster part release) – minimum orifice - 0.125" [3mm]

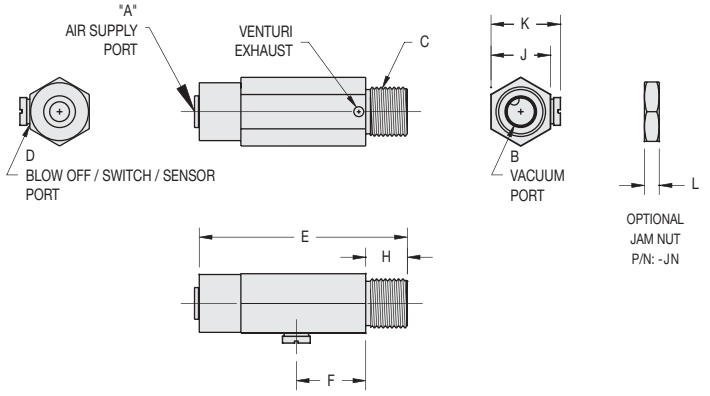
Vacuum Line: Preferred 1/4" OD tubing [6mm]

Vacuum Line Filtration: Typically filters are not required, if desired Vaccon recommends – VF125LPM. See page 282.

Mounting: 5/8-18 male thread (optional jam nut – P/N: -JN)

Standard Pump: VPI-90H Inline Venturi Vacuum Pump

VPI-90H



Specifications:

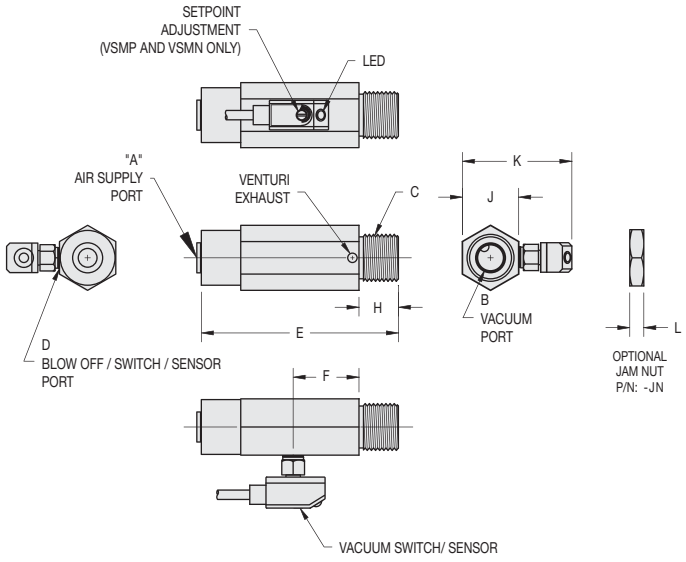
Segment Weight: 1.7 oz [48g]
Noise Level: 76 dB

Model #	Imperial Dimensions (in.)									
	A	B	C	D	E	F	H	J	K	L
VPI-90H	1/4 PTC	1/8 NPT F	5/8-18 UNF	M5	2.63	0.88	0.53	0.75	0.88	0.19

Consult factory for metric availability.

VPI-90H with Optional Sensor/Switch (VSMN, VSMP, VTMV)

VPI-90H with VSMN vacuum switch.



Specifications:

Segment Weight: 2.7 oz [76.5g]
Noise Level: 76 dB

Model #	Imperial Dimensions (in.)									
	A	B	C	D	E	F	H	J	K	L
VPI-90H (VSMN, VSMP, VTMV)	1/4 PTC	1/8 NPT F	5/8-18 UNF	M5	2.63	0.88	0.53	0.75	1.46	0.19

Consult factory for metric availability.

Adjustable, Dirt Tolerant Venturi Vacuum Pumps

VDF Series

VDF-375-ST8B picks and places refrac bricks used to line refractory ovens.

VDF 150-ST4

Ideal Applications

Ideal for dirty, dusty environments; the VDF holds porous materials securely:

- **Pick and place**
- **Vacuum filling – Liquids and powders**
- **Vacuum packaging – Coated materials**
- **Bag/box opening**
- **Material handling**

Features/Benefits

- **Adjustable vacuum level or flow rate:**
  - **~ Powerful vacuum up to 25"Hg [847mbar]**
  - **~ High flow rates up to 120 SCFM [3398 lpm]**
- **Energy efficient – customer controlled – high performance to air consumption ratio**
- **Safe Operation:**
  - **~ No electricity needed at the pump**
  - **~ No heat generated**
- **Reliable, trouble-free operation**
  - **~ Straight-through design, non-clogging**
  - **~ No moving parts to wear**
  - **~ No flap valves to stick open**
  - **~ No maintenance**
  - **~ No downtime**

Standard Pump:

The VDF Series is a unique Vaccon innovation that places the vacuum port and exhaust path inline making a straight-through venturi vacuum pump. These compact pumps offer high flow rates up to 120 SCFM [3400 LPM] and high vacuum levels up to 25"Hg [847mbar].

Developed for extremely dirty and dusty environments such as foundries, refractory and bagging operations, VDF pumps don't clog, lose suction or require a vacuum filter.

VDF pumps are field-adjustable allowing you to regulate the vacuum flow and vacuum level to meet your application requirements. This maximizes energy efficiency by consuming only the compressed air necessary to do the job. A pressure regulator is not required as the pump can be tuned to operate at any pressure above 50 PSI [3.5 BAR].

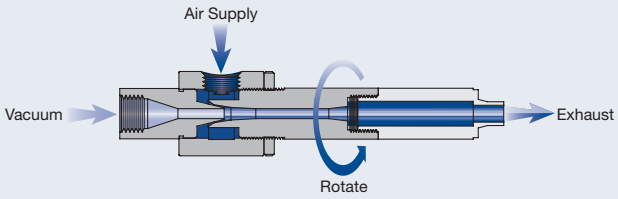
For the same reliable operation but with a fixed orifice, see the FDF Series on page 205.

Pump Options:

- ST Silencers – straight through silencers won't clog
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures: operates at any pressure above 50 PSI [3.5 BAR]
- For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin,™ Teflon,™ PVC.

Principles of Operation:

Changing the annular gap between the venturi nozzle and the diffuser varies the performance of the VDF pump. Rotating the diffuser section counter clock-wise enlarges the opening, allowing more compressed air to flow through the pump and thereby increasing both the vacuum flow and the vacuum level. Likewise, rotating the diffuser section clockwise reduces the opening, allowing less compressed air to flow through the pump and thereby decreasing both the vacuum flow and the vacuum level. The result is a variable vacuum pump—adjustable to meet your exact application requirements.



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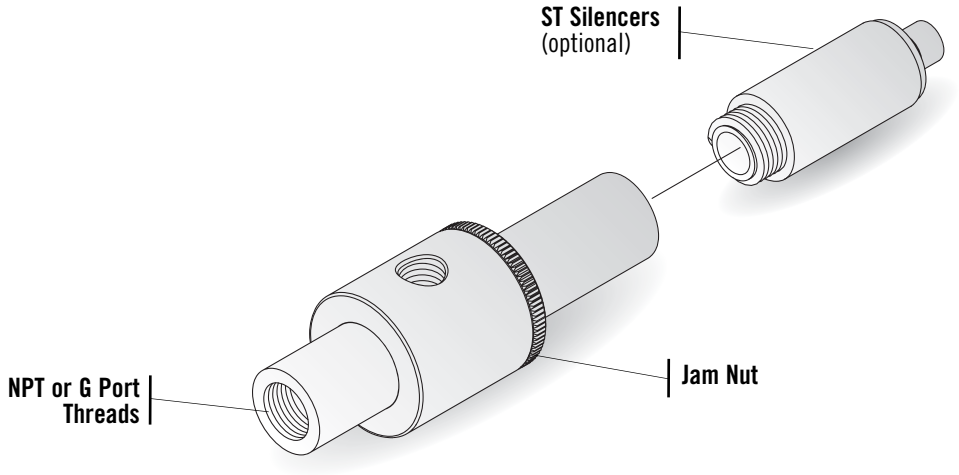
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

VDF Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to Specify:

VDF 250 - ST4A2 - ____

P/N	Thread	Silencer*
VDF 100	NPT	ST4
VDF 150	NPT	ST4
VDF 200	NPT	ST4
VDF 250	NPT	ST4A2
VDF 375	NPT	ST8B
VDF 500	NPT	ST12C
VDF 750	NPT	ST16C
I-VDF 100	G Port	ST4
I-VDF 150	G Port	ST4
I-VDF 200	G Port	ST4
I-VDF 250	G Port	ST4A2
I-VDF 375	G Port	ST8B
I-VDF 500	G Port	ST12C
I-VDF 750	G Port	ST16C

P/N	Material
	Anodized Aluminum
303	303 Stainless Steel
304	304 Stainless Steel
316	316 Stainless Steel
316L	316 Low Carbon Stainless
PVC	PVC
TEF	PTFE
PK	PEEK
DEL	Delrin

*Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.

For complete Performance Data, see page 202.

VDF Series Vacuum Pump Standard Specifications:

Body Material: Anodized Aluminum Standard (for silencer material - See page 235)

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -100°~ 400° F [-73°~204°C]

Operating Pressure: Above 50 PSI

VDF Series Vacuum Pump Installation Instructions:

Model #:	VDF 100, 150, 200, 250	VDF 375	VDF 500	VDF 750
Air Supply Line - Tubing†	3/8" [10mm]	1/2" [12mm]	1/2" [12mm]	5/8" [16mm]
Vacuum Line - Tubing†	3/8" [10mm]	5/8" [16mm]	3/4" [19mm] ID Hose	1.0" [5mm] ID Hose

†Tubing size is based on 0.062 wall – polyethylene & polyurethane.

Standard Pump: VDF Series (100, 150, 200, 250, 375, 500, 750) with Optional ST Silencers

VDF 100, 150, 200

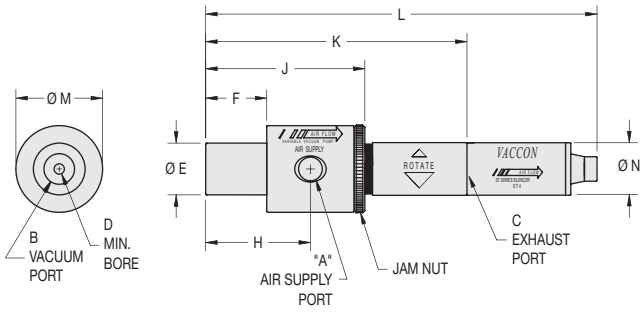
VDF 250

VDF 375

VDF 500

VDF 750

Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.



Model #	VDF Series – Imperial Dimensions (in.)												
	A	B	C	D	E	F	H	J	K	L	M	N	Weight
VDF 100	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.13	0.74	0.87	1.50	2.27	3.73		1.24		3.7 oz
VDF 100-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.13	0.74	0.87	1.50	2.27	3.73	5.60	1.24	0.75	4.3 oz
VDF 150	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.15	0.74	0.87	1.50	2.27	3.73		1.24		3.7 oz
VDF 150-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.15	0.74	0.87	1.50	2.27	3.73	5.60	1.24	0.75	4.3 oz
VDF 200	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.19	0.74	0.87	1.50	2.27	3.73		1.24		3.7 oz
VDF 200-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.19	0.74	0.87	1.50	2.27	3.73	5.60	1.24	0.75	4.3 oz
VDF 250	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.27	0.74	0.87	1.50	2.27	3.73		1.24		3.6 oz
VDF 250-ST4A2	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.27	0.74	0.87	1.50	2.27	3.73	6.29	1.24	1.00	5.0 oz
VDF 375	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.38	0.99	1.50	2.37	3.45	6.04		1.74		9.7 oz
VDF 375-ST8B	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.38	0.99	1.50	2.37	3.45	6.04	10.84	1.74	1.25	12.7 oz
VDF 500	3/8 NPT F	1/2 NPT F	3/4 NPT F	0.50	1.24	1.50	2.50	3.70	6.06		1.97		14.3 oz
VDF 500-ST12C	3/8 NPT F	1/2 NPT F	3/4 NPT F	0.50	1.24	1.50	2.50	3.70	6.06	13.00	1.97	2.00	1 lb 6 oz
VDF 750	1/2 NPT F	3/4 NPT F	1 NPT F	0.75	1.49	1.50	2.50	3.70	6.95		2.22		1 lb 3 oz
VDF 750-ST16C	1/2 NPT F	3/4 NPT F	1 NPT F	0.75	1.49	1.50	2.50	3.70	6.95	13.88	2.22	2.00	1 lb 11 oz

Model #	VDF Series – Metric Dimensions (mm.)												
	A	B	C	D	E	F	H	J	K	L	M	N	Weight
I-VDF 100	G 1/8	G 1/4	G 1/4	3.2	18.8	22.1	38.1	57.7	94.7		31.5		105 g
I-VDF 100-ST4	G 1/8	G 1/4	G 1/4	3.2	18.8	22.1	38.1	57.7	94.7	142.2	31.5	19.1	122 g
I-VDF 150	G 1/8	G 1/4	G 1/4	3.7	18.8	22.1	38.1	57.7	94.7		31.5		105 g
I-VDF 150-ST4	G 1/8	G 1/4	G 1/4	3.7	18.8	22.1	38.1	57.7	94.7	142.2	31.5	19.1	122 g
I-VDF 200	G 1/8	G 1/4	G 1/4	4.8	18.8	22.1	38.1	57.7	94.7		31.5		105 g
I-VDF 200-ST4	G 1/8	G 1/4	G 1/4	4.8	18.8	22.1	38.1	57.7	94.7	142.2	31.5	19.1	122 g
I-VDF 250	G 1/8	G 1/4	G 1/4	6.7	18.8	22.1	38.1	57.7	94.7		31.5		102 g
I-VDF 250-ST4A2	G 1/8	G 1/4	G 1/4	6.7	18.8	22.1	38.1	57.7	94.7	159.8	31.5	25.4	142 g
I-VDF 375	G 3/8	G 1/2	G 1/2	9.5	25.1	38.1	60.2	87.6	153.4		44.2		275 g
I-VDF 375-ST8B	G 3/8	G 1/2	G 1/2	9.5	25.1	38.1	60.2	87.6	153.4	275.3	44.2	31.8	360 g
I-VDF 500	G 3/8	G 1/2	G 3/4	12.7	31.5	38.1	63.5	94.0	153.9		50.0		405 g
I-VDF 500-ST12C	G 3/8	G 1/2	G 3/4	12.7	31.5	38.1	63.5	94.0	153.9	330.2	50.0	50.8	618 g
I-VDF 750	G 1/2	G 3/4	G 1	19.1	37.8	38.1	63.5	94.0	176.5		56.4		544 g
I-VDF 750-ST16C	G 1/2	G 3/4	G 1	19.1	37.8	38.1	63.5	94.0	176.5	352.6	56.4	50.8	763 g

Note: Dimensions given are for closed/off positions.

VDF Series Performance Chart

Model #	Imperial - Vacuum Flow (SCFM) vs Vacuum Level ("Hg) with VDF set at 25"Hg									
	0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	25"Hg
VDF 100	2.00	1.80	1.60	1.40	1.30	1.20	1.10	0.75	0.25	0.00
VDF 150	3.20	2.80	2.50	2.20	1.80	1.60	1.30	0.90	0.40	0.00
VDF 200	6.00	5.60	5.00	4.20	3.60	3.00	2.60	1.80	0.90	0.00
VDF 250	10.00	9.20	8.30	7.50	6.60	5.80	5.20	3.80	1.30	0.00
VDF 375	30.00	27.00	25.00	23.00	21.00	18.00	16.00	11.00	3.00	0.00
VDF 500	60.00	52.00	45.00	41.00	38.00	35.00	28.00	19.00	5.00	0.00
VDF 750	120.00	99.00	83.00	74.00	62.00	51.00	46.00	34.00	9.00	0.00

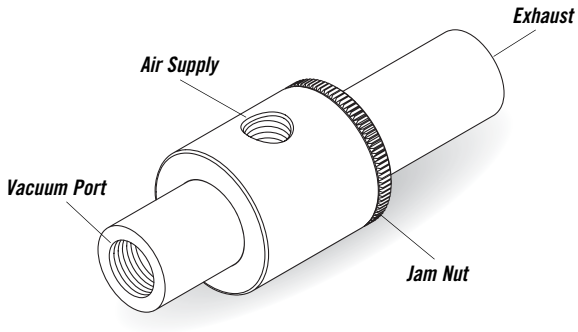
Model #	Imperial - Evacuation Time (seconds) based on 1 cu. ft. volume with VDF set at 25"Hg									
	0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	25"Hg
VDF 100	0.00	3.34	7.95	13.60	20.53	28.48	38.74	53.88	84.15	104.94
VDF 150	0.00	2.57	5.90	10.00	15.39	22.06	31.05	46.18	75.69	97.50
VDF 200	0.00	1.03	2.57	4.11	6.41	9.49	13.34	19.50	31.05	38.23
VDF 250	0.00	0.51	1.03	1.80	2.82	4.11	5.90	9.75	17.19	21.55
VDF 375	0.00	0.00	0.51	1.03	1.28	2.05	3.08	4.87	8.47	12.83
VDF 500	0.00	0.00	0.21	0.48	0.73	1.08	1.54	2.73	4.45	6.92
VDF 750	0.00	0.00	0.00	0.00	0.12	0.38	0.70	1.09	3.07	5.38

Model #	Metric - Vacuum Flow (LPM) vs Vacuum Level (mbar) with VDF set at 846 mbar									
	0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	846 mbar
I-VDF 100	56.6	51.0	45.3	39.6	36.8	34.0	31.2	21.2	7.1	0.00
I-VDF 150	90.6	79.3	70.8	62.3	51.0	45.3	36.8	25.5	11.3	0.00
I-VDF 200	169.9	158.6	141.6	118.9	102.0	85.0	73.6	51.0	25.5	0.00
I-VDF 250	283.2	260.5	235.1	212.4	186.9	164.3	147.3	107.6	36.8	0.00
I-VDF 375	849.6	764.6	708.0	651.4	594.7	509.8	453.1	311.5	85.0	0.00
I-VDF 500	1699.2	1472.6	1274.4	1161.1	1076.2	991.2	793.0	538.1	141.6	0.00
I-VDF 750	3398.4	2803.7	2350.6	2095.7	1755.8	1444.3	1302.7	962.9	254.9	0.00

Model #	Metirc - Evacuation Time (seconds) based on 1 liter volume with VDF set at 846 mbar									
	0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	846 mbar
I-VDF 100	0.00	0.1	0.3	0.5	0.7	1.0	1.4	1.9	3.0	3.7
I-VDF 150	0.00	0.1	0.2	0.4	0.5	0.8	1.1	1.6	2.7	3.4
I-VDF 200	0.00	0.0	0.1	0.1	0.2	0.3	0.5	0.7	1.1	1.3
I-VDF 250	0.00	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.6	0.8
I-VDF 375	0.00	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.5
I-VDF 500	0.00	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2
I-VDF 750	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2

Note: Evacuation speed is linear with volume i.e. a 2 cu. ft. volume will take twice as long as a 1 cu ft volume to evacuate.

VDF Series Operating Instructions



VDF Operating Instructions:

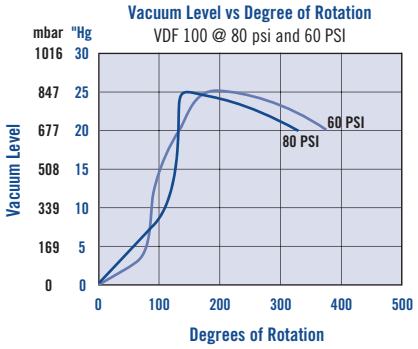
1. Loosen jam nut by rotating counter-clockwise.
2. Rotate exhaust body clockwise until closed, jam nut should be loose on exhaust body.
3. Attach air line to air supply port and vacuum line to vacuum port or connect cup to port. See chart on page 198 for minimum recommended line sizes.
4. Turn on compressed air.
5. Rotate exhaust body counter-clockwise to the desired vacuum level using rotation chart on page 202. Charts are based on 80 and 60 PSI to provide a starting point. Pumps will achieve maximum vacuum levels at any pressure above 50 PSI (pressure regulator is not required).
6. After achieving desired vacuum level, tighten jam nut by rotating clockwise.

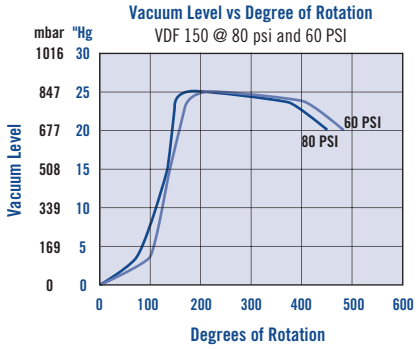
* **Note 1:** Maximum vacuum flow is achieved at 15"Hg.
Note 2: Further rotation will increase the vacuum level, while the flow remains constant.
Note 3: VDF 375 and larger, it may be necessary to turn compressed air off while making adjustments to relieve pressure on threads and make rotating easier.

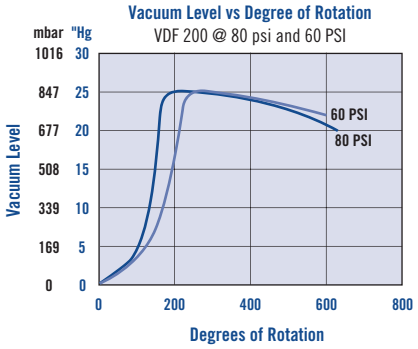
Model #	Max Vacuum Flow SCFM*	Air Consumption SCFM**
VDF 100	2.00	1.30
VDF 150	3.20	2.40
VDF 200	6.00	4.70
VDF 250	10.00	8.30
VDF 375	30.00	17.00
VDF 500	60.00	28.00
VDF 750	120.00	44.00

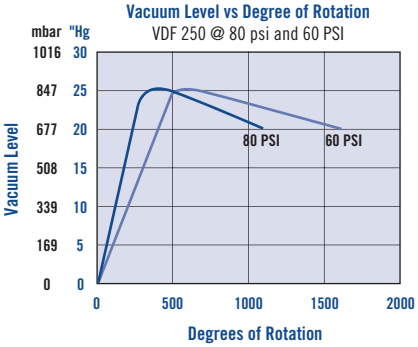
** These values are achieved when pumps are set to 15"Hg

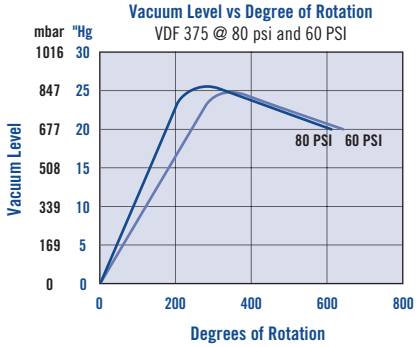
Vacuum Level vs. Degree of Rotation

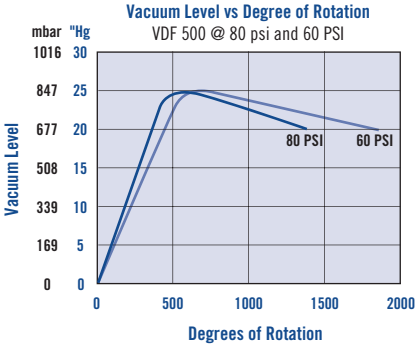


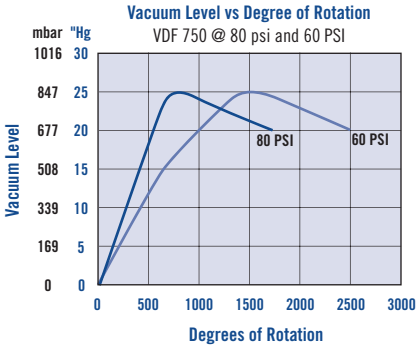










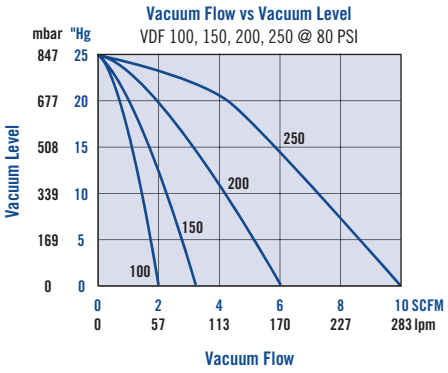


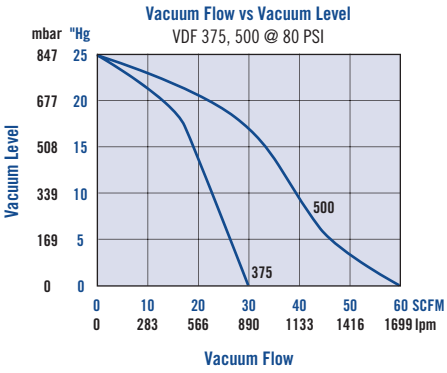
Rotational Chart

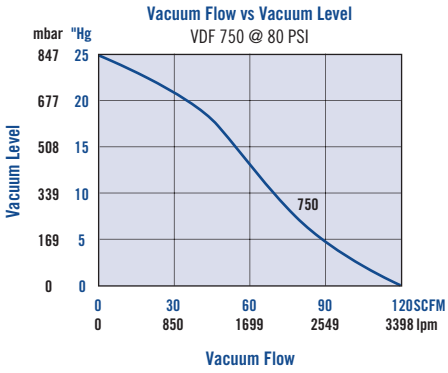
Degrees of Rotation vs. Vacuum Level "Hg @ 80 PSI											Degrees of Rotation vs. Vacuum Level "Hg @ 60 PSI									
Model #	0"	3"	6"	9"	12"	15"	18"	21"	24"	25"	0"	3"	6"	9"	12"	15"	18"	21"	24"	25"
VDF 100	0	30	60	100	115	120	125	130	134	135	0	60	70	80	90	110	120	140	160	170
VDF 150	0	80	90	105	120	135	145	150	160	165	0	90	100	110	120	130	145	165	19-0	195
VDF 200	0	90	105	120	150	160	170	175	185	190	0	100	135	165	175	185	200	215	235	240
VDF 250	0	100	140	180	195	210	250	275	340	355	0	145	180	205	260	320	370	440	510	530
VDF 375	0	60	90	100	125	155	180	195	220	230	0	65	90	115	165	190	210	255	290	300
VDF 500	0	80	130	170	200	260	340	390	460	490	0	100	170	190	260	360	420	480	560	600
VDF 750	0	95	170	260	350	450	540	630	710	730	0	145	260	350	475	610	730	1080	1370	1440

Note: All degrees of rotation are approximate. For example: At 80 PSI, a VDF 200 to be set at 21"Hg would be rotated approximately 175° from the closed position.

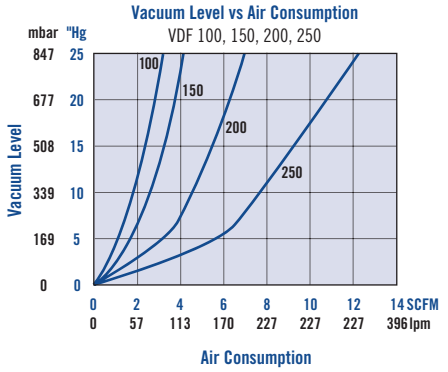
VDF Series – Vacuum Flow vs. Vacuum Level

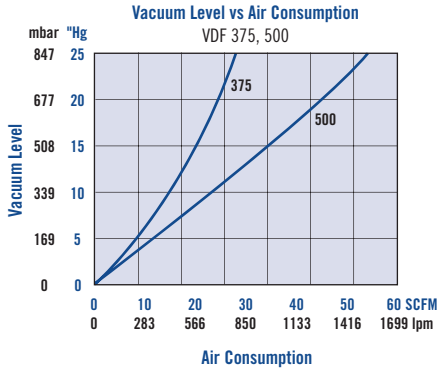


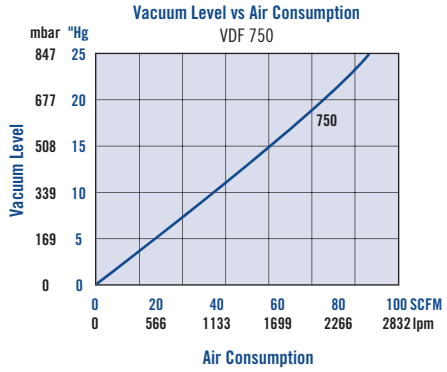




VDF Series – Vacuum Level vs. Air Consumption







Note: The graphs were generated by pre-setting the pumps to their maximum vacuum level.

Custom VDF Series

Ideal for OEM engineers and designers

Creative Engineering • Precision Manufacturing • Extensive Application Experience

When off the shelf doesn't work, Vaccon's engineering expertise and manufacturing capabilities can provide custom solutions to your specifications.

Whether it's as simple as modifying a standard product, or more complex requiring new products with precise tolerences, or special materials, Vaccon has the solution.

Specialty Materials:

For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin,™ Teflon,™ PVC.

VDF 500-61:

Used as a hand held vacuum pump to allow an operator to wind continuous flowing filament onto drive pulleys and the shipping spool. The high flow and high vacuum creates the necessary tension on the filament strand to maintain filament production line speed. The added length on the vacuum side makes it easier for the operator to wind the filament through the drive pulley system.

VDF 750P:

A standard pump that was made without inlet or exhaust threads and comes complete with a bolt circle for easy installation into the head of industrial vacuum cleaners or other enclosures.

The adjustable feature allows each manufacturer to determine the maximum vacuum level for their equipment to ensure that the container does not implode.

When size, shape, material and performance matter, it's Vaccon Vacuum Pumps.

Fixed, Dirt Tolerant Venturi Vacuum Pumps

FDF Series

FDF 200-ST4 handles porous ceramic honeycomb

FDF 250-ST4A-2

Ideal Applications

Ideal for dirty, dusty environments; the FDF holds porous materials securely:

- **Bag/box opening**
- **Material handling**
- **Pick and place – dusty/dirty environments**
- **Vacuum filling – liquids and powders**
- **Vacuum packaging – coated materials**

Features and Benefits:

- **Factory set for optimum performance**
- **Cost efficient – high performance to air consumption ratio**
- **Safe Operation:**
  - **~ No electricity needed at the pump**
  - **~ No heat generated**
- **Reliable, durable, trouble-free operation:**
  - **~ Tamper proof**
  - **~ No moving parts to wear**
  - **~ Straight-through design – non-clogging**
  - **~ No flap valves to stick open**
  - **~ No maintenance**
  - **~ No downtime**

Standard Pump:

The FDF Series offers the same inline, dirt tolerant design as the VDF Series without the adjustability. The FDF Series have a "fixed" performance level.

The in-line vacuum to exhaust flow path ensures that ingested debris and dirt passes through the pump and out the straight-through silencer. Designed for extremely dirty environments these pumps perform reliably in applications such as furniture making, bottling and material handling.

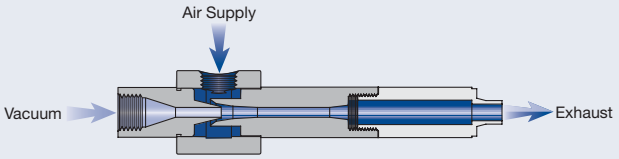
The FDF Series pumps are set to generate the maximum vacuum level [25"Hg/847mbar] and maximum vacuum flow of the comparable VDF Series pump.

Pump Options:

- ST Silencers – straight through silencers won't clog
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Choice of operating pressures: operates at any pressure above 50 PSI [3.5 BAR]
- For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin,™ Teflon,™ PVC.

Principles of Operation:

Using an "inside-out" venturi design, compressed air is forced through a limiting annular gap into the main bore where it increases in velocity and develops a powerful vacuum. The vacuum to exhaust path is in a straight line allowing ingested debris to easily pass through the vacuum pump. This extremely simple design is efficient and indestructible. All FDF models generate 25"Hg at 80 PSI.



Eliminate the Guesswork: Contact Us!

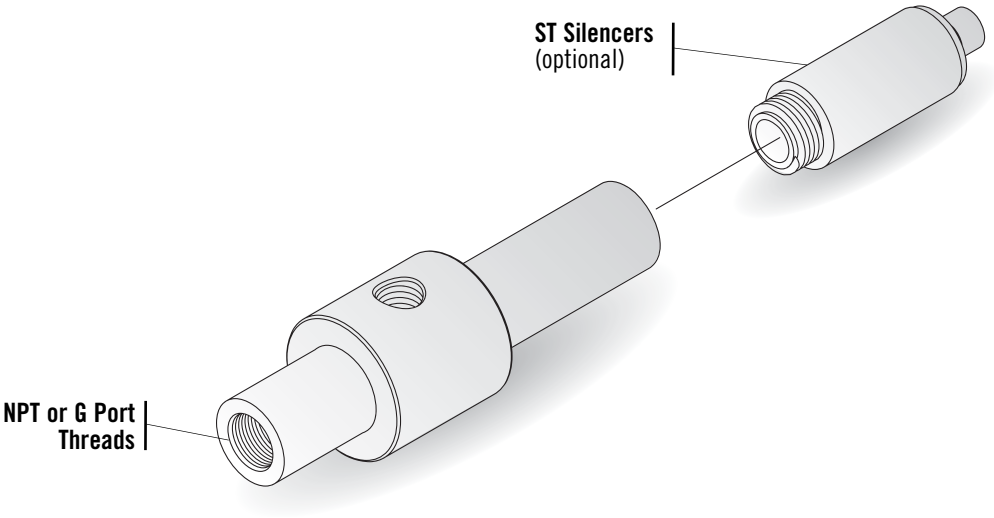
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

FDF Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



How to Specify:

FDF 100 - ST4 - 303

P/N	Thread	Silencer
FDF 100	NPT	ST4
FDF 150	NPT	ST4
FDF 200	NPT	ST4
FDF 250	NPT	ST4A2
FDF 375	NPT	ST8B
FDF 500	NPT	ST12C
FDF 750	NPT	ST16C
I-FDF 100	G Port	ST4
I-FDF 150	G Port	ST4
I-FDF 200	G Port	ST4
I-FDF 250	G Port	ST4A2
I-FDF 375	G Port	ST8B
I-FDF 500	G Port	ST12C
I-FDF 750	G Port	ST16C

P/N	Material
	Anodized Aluminum
303	303 Stainless Steel
304	304 Stainless Steel
316	316 Stainless Steel
316L	316 Low Carbon Stainless
PVC	PVC
TEF	PTFE
PK	PEEK
DEL	Delrin

*Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.

FDF Series Vacuum Pump Standard Specifications:

Body Material: Anodized Aluminum Standard (For silencer material - See page 235-236)

Medium: Filtered (50 Micron) un-lubricated, non-corrosive dry gases

Operating Temperature: -100°~ 400° F [-73°~204°C]

Operating Pressure: Above 50 PSI

FDF Series Vacuum Pump Installation Options:

Model #:	FDF 100, 150, 200, 250	FDF 375	FDF 500	FDF 750
Air Supply Line - Tubing†	3/8" [10mm]	1/2" [12mm]	1/2" [12mm]	5/8" [16mm]
Vacuum Line - Tubing†	3/8" [10mm]	5/8" [16mm]	3/4" [19mm] ID Hose	1.0" [25mm] ID Hose

†Tubing size is based on 0.062 wall – polyethylene & polyurethane.

Standard Pump: FDF Series (100, 150, 200, 250, 375, 500, 750) with ST Silencers

FDF 100, 150, 200

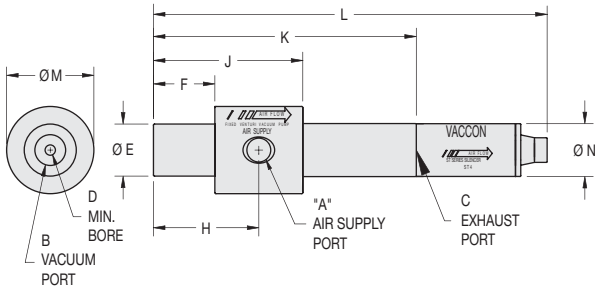
FDF 250

FDF 375

FDF 500

FDF 750

Vaccon strongly recommends the use of silencers on all pumps except where the exhaust is plumbed away.



Model #	FDF Series – Imperial Dimensions (in.)												
	A	B	C	D	E	F	H	J	K	L	M	N	Weight
FDF 100	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.13	0.74	0.87	1.50	2.12	3.73		1.24		3.5 oz
FDF 100-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.13	0.74	0.87	1.50	2.12	3.73	5.60	1.24	0.75	4.1 oz
FDF 150	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.15	0.74	0.87	1.50	2.12	3.73		1.24		3.5 oz
FDF 150-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.15	0.74	0.87	1.50	2.12	3.73	5.60	1.24	0.75	4.1 oz
FDF 200	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.19	0.74	0.87	1.50	2.12	3.73		1.24		3.5 oz
FDF 200-ST4	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.19	0.74	0.87	1.50	2.12	3.73	5.60	1.24	0.75	4.1 oz
FDF 250	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.27	0.74	0.87	1.50	2.12	3.73		1.24		3.4 oz
FDF 250-ST4A2	1/8 NPT F	1/4 NPT F	1/4 NPT F	0.27	0.74	0.87	1.50	2.12	3.73	6.29	1.24	1.00	4.8 oz
FDF 375	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.38	0.99	1.50	2.37	3.25	6.04		1.74		9.2 oz
FDF 375-ST8B	3/8 NPT F	1/2 NPT F	1/2 NPT F	0.38	0.99	1.50	2.37	3.25	6.04	10.84	1.74	1.25	12.2 oz
FDF 500	3/8 NPT F	1/2 NPT F	3/4 NPT F	0.50	1.24	1.50	2.50	3.50	6.06		1.97		13.7 oz
FDF 500-ST12C	3/8 NPT F	1/2 NPT F	3/4 NPT F	0.50	1.24	1.50	2.50	3.50	6.06	13.00	1.97	2.00	1 lb 5 oz
FDF 750	1/2 NPT F	3/4 NPT F	1 NPT F	0.75	1.49	1.50	2.50	3.50	6.95		2.22		1 lb 2 oz
FDF 750-ST16C	1/2 NPT F	3/4 NPT F	1 NPT F	0.75	1.49	1.50	2.50	3.50	6.95	13.88	2.22	2.00	1 lb 10 oz

Model #	FDF Series – Metric Dimensions (mm.)												
	A	B	C	D	E	F	H	J	K	L	M	N	Weight
I-FDF 100	G 1/8	G 1/4	G 1/4	3.2	18.8	22.1	38.1	53.8	94.7		31.5		100 g
I-FDF 100-ST4	G 1/8	G 1/4	G 1/4	3.2	18.8	22.1	38.1	53.8	94.7	142.2	31.5	19.1	117 g
I-FDF 150	G 1/8	G 1/4	G 1/4	3.7	18.8	22.1	38.1	53.8	94.7		31.5		100 g
I-FDF 150-ST4	G 1/8	G 1/4	G 1/4	3.7	18.8	22.1	38.1	53.8	94.7	142.2	31.5	19.1	117 g
I-FDF 200	G 1/8	G 1/4	G 1/4	4.8	18.8	22.1	38.1	53.8	94.7		31.5		100 g
I-FDF 200-ST4	G 1/8	G 1/4	G 1/4	4.8	18.8	22.1	38.1	53.8	94.7	142.2	31.5	19.1	117 g
I-FDF 250	G 1/8	G 1/4	G 1/4	6.7	18.8	22.1	38.1	53.8	94.7		31.5		97 g
I-FDF 250-ST4A2	G 1/8	G 1/4	G 1/4	6.7	18.8	22.1	38.1	53.8	94.7	159.8	31.5	25.4	137 g
I-FDF 375	G 3/8	G 1/2	G 1/2	9.5	25.1	38.1	60.2	82.6	153.4		44.2		260 g
I-FDF 375-ST8B	G 3/8	G 1/2	G 1/2	9.5	25.1	38.1	60.2	82.6	153.4	275.3	44.2	31.8	345 g
I-FDF 500	G 3/8	G 1/2	G 3/4	12.7	31.5	38.1	63.5	88.9	153.9		50.0		388 g
I-FDF 500-ST12C	G 3/8	G 1/2	G 3/4	12.7	31.5	38.1	63.5	88.9	153.9	330.2	50.0	50.8	601 g
I-FDF 750	G 1/2	G 3/4	G 1	19.1	37.8	38.1	63.5	88.9	176.5		56.4		524 g
I-FDF 750-ST16C	G 1/2	G 3/4	G 1	19.1	37.8	38.1	63.5	88.9	176.5	352.6	56.4	50.8	743 g

FDF Series Pumps Performance Chart

Model #	Imperial - Vacuum Flow (SCFM) vs Vacuum Level ("Hg)									
	0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	25"Hg
FDF 100	2.00	1.80	1.60	1.40	1.30	1.20	1.10	0.75	0.25	0.00
FDF 150	3.20	2.80	2.50	2.20	1.80	1.60	1.30	0.90	0.40	0.00
FDF 200	6.00	5.60	5.00	4.20	3.60	3.00	2.60	1.80	0.90	0.00
FDF 250	10.00	9.20	8.30	7.50	6.60	5.80	5.20	3.80	1.30	0.00
FDF 375	30.00	27.00	25.00	23.00	21.00	18.00	16.00	11.00	3.00	0.00
FDF 500	60.00	52.00	45.00	41.00	38.00	35.00	28.00	19.00	5.00	0.00
FDF 750	120.00	99.00	83.00	74.00	62.00	51.00	46.00	34.00	9.00	0.00

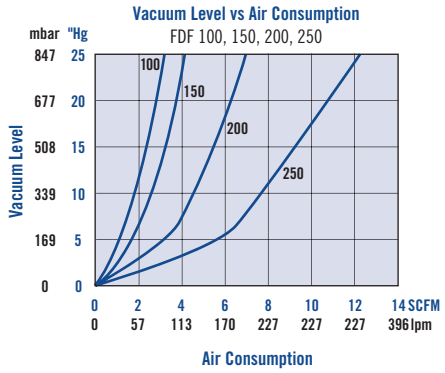
Model #	Imperial - Evacuation Time (seconds) based on 1 cu. ft. volume with FDF set at 25"Hg									
	0"Hg	3"Hg	6"Hg	9"Hg	12"Hg	15"Hg	18"Hg	21"Hg	24"Hg	25"Hg
FDF 100	0.00	3.34	7.95	13.60	20.53	28.48	38.74	53.88	84.15	104.94
FDF 150	0.00	2.57	5.90	10.00	15.39	22.06	31.05	46.18	75.69	97.50
FDF 200	0.00	1.03	2.57	4.11	6.41	9.49	13.34	19.50	31.05	38.23
FDF 250	0.00	0.51	1.03	1.80	2.82	4.11	5.90	9.75	17.19	21.55
FDF 375	0.00	0.00	0.51	1.03	1.28	2.05	3.08	4.87	8.47	12.83
FDF 500	0.00	0.00	0.21	0.48	0.73	1.08	1.54	2.73	4.45	6.92
FDF 750	0.00	0.00	0.00	0.00	0.12	0.38	0.70	1.09	3.07	5.38

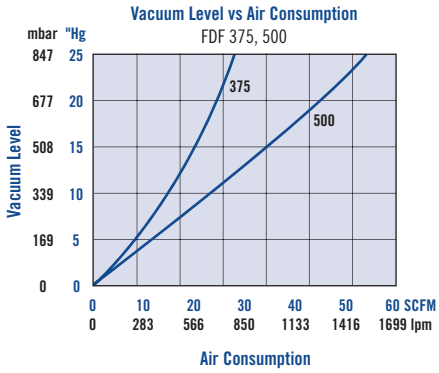
Model #	Metric - Vacuum Flow (LPM) vs Vacuum Level (mbar)									
	0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	846 mbar
I-FDF 100	56.6	51.0	45.3	39.6	36.8	34.0	31.2	21.2	7.1	0.00
I-FDF 150	90.6	79.3	70.8	62.3	51.0	45.3	36.8	25.5	11.3	0.00
I-FDF 200	169.9	158.6	141.6	118.9	102.0	85.0	73.6	51.0	25.5	0.00
I-FDF 250	283.2	260.5	235.1	212.4	186.9	164.3	147.3	107.6	36.8	0.00
I-FDF 375	849.6	764.6	708.0	651.4	594.7	509.8	453.1	311.5	85.0	0.00
I-FDF 500	1699.2	1472.6	1274.4	1161.1	1076.2	991.2	793.0	538.1	141.6	0.00
I-FDF 750	3398.4	2803.7	2350.6	2095.7	1755.8	1444.3	1302.7	962.9	254.9	0.00

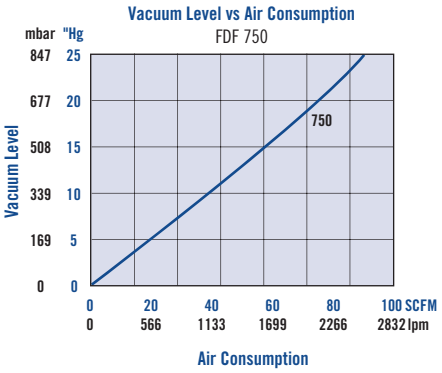
Model #	Metric - Evacuation Time (seconds) based on 1 liter volume with FDF set at 846 mbar									
	0 mbar	102 mbar	203 mbar	305 mbar	406 mbar	508 mbar	609 mbar	711 mbar	813 mbar	846 mbar
I-FDF 100	0.00	0.1	0.3	0.5	0.7	1.0	1.4	1.9	3.0	3.7
I-FDF 150	0.00	0.1	0.2	0.4	0.5	0.8	1.1	1.6	2.7	3.4
I-FDF 200	0.00	0.0	0.1	0.1	0.2	0.3	0.5	0.7	1.1	1.3
I-FDF 250	0.00	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.6	0.8
I-FDF 375	0.00	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.5
I-FDF 500	0.00	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2
I-FDF 750	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2

Note: Evacuation speed is linear with volume i.e. a 2 cu. ft. volume will take twice as long as a 1 cu ft volume to evacuate.

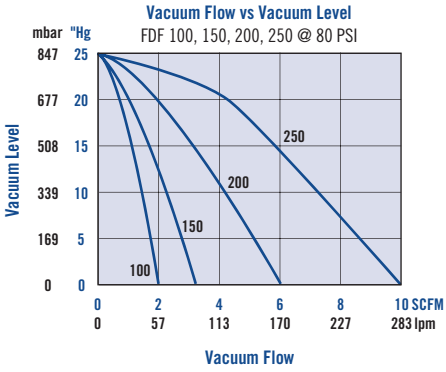
FDF Series – Vacuum Flow vs. Vacuum Level

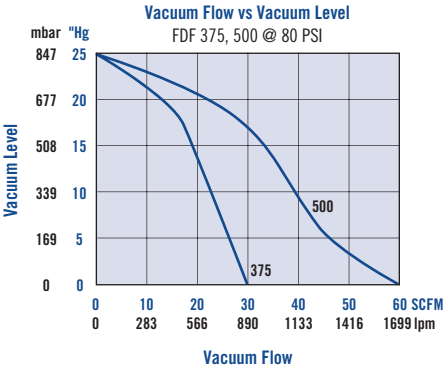


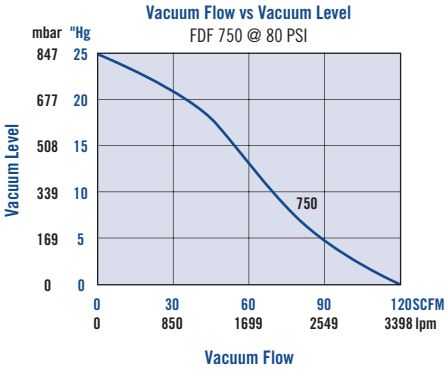




FDF Series – Vacuum Level vs. Air Consumption







Adjustable Air Amplifiers/Blowers

CDF Series

Air Amplifier - Blower: *High Output Flow*

The CDF Series air amplifiers generate high output flow using a small volume of compressed air. This efficient use of air makes CDF air amplifiers a cost-effective alternative to electric blowers or raw compressed air.

CDF 500H dries bottles, cans or other containers after filling or washing

CDF 750H removes fumes, air, smoke or mist from cabinets, storage lockers or other enclosures.

Air Amplifier - Material Handling: *High Vacuum Flow*

CDF Series air amplifiers generate high vacuum flow, overcoming leaks inherent in handling porous objects such as foam or fabric. With or without a vacuum cup, CDF air amplifiers will safely transfer irregular shaped items. For more on material handling, see next page.

Overcomes leaks from wrinkled or flexible materials

Handle irregular surfaces, foam and other porous materials

Ideal Applications:

- Inflation & Deflation
- Pick and place of porous materials
- Drying
- Cooling
- Air bearing
- Fume evacuation
- Material handling of irregular/flexible surfaces
- Bag or pouch opening

Features and Benefits:

- Field adjustable for individual applications
- High performance – 40:1 amplification ratio
- Holds porous materials securely
- Easy to install – compact & lightweight
- Efficient – Instant response, minimal energy required
- Safe operation
  - ~ No electricity needed at the pump
  - ~ No heat generated
  - ~ Control output pressure, no bursting
- Reliable, durable, trouble-free operation
  - ~ Ideal for adverse operating conditions
  - ~ No moving parts to wear
  - ~ Straight-through design, non-clogging
  - ~ No downtime

Standard Adjustable Air Amplifiers:

To meet a wide range of applications, air velocity and air flow are field adjustable to compensate for the pressure level supplied. CDF air amplifiers can achieve amplification ratios as high as 40:1 (output to input)

The CDF air amplifier's straight-through design allows dirt and debris to pass through without clogging providing maintenance-free operation.

Vaccon air amplifiers are energy efficient; unlike regenerative blowers that must run continuously. Incorporating a solenoid valve for instant on/off control; CDF's are only on when air is needed.

Air Amplifier Options:

- 9 Standard models (bores from 1/8" [3mm] to 2" [50mm]
- EPT – Exhaust Port Threads – factory installed – for ease of mounting and fixed plumbing systems
- ST Silencers – straight through silencers won't clog
- G Port or metric threads – products with an "I" prefix designates metric threads
- Variable operating pressures: for maximum performance, Vaccon recommends pressures above 50 PSI [3.5 BAR]
- For chemical compatibility, heat and environmental requirements, food and medical applications, custom materials are available: stainless steel, Delrin®, Teflon®, PVC, and more. Consult factory.

Eliminate the Guesswork: Contact Us!

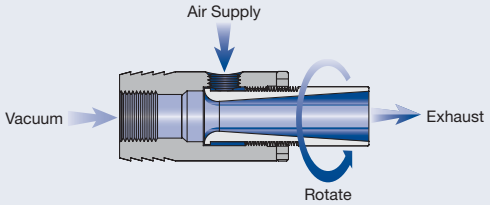
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Principles of Operation:

CDF pumps operate on the "Coanda Effect" where a small volume of compressed air is converted into a large flow of ambient air. Compressed air is emitted from an annular gap and passes over a curved surface into the throat of the unit. As the air passes over this curved surface, similar to an airfoil, a low pressure area is created inducing ambient air to flow into the throat with the compressed air.



Adjustable Air Amplifier - Material Handling

Vaccon Air Amplifiers easily and safely handle porous objects that many consider too challenging to handle with vacuum. Applications include automating sheet feeders, assembly and palletizers, conveyor transfer and packaging of such products as:

- **Egg crate sheets of foam or felt**
- **IV bags**
- **Perforated metal**
- **Fan scrolls**
- **Circuit boards**
- **Freshly baked cakes or pastries**
- **Frozen foods**

Producing low vacuum and high flow, CDF's handle crumbly, delicate products like birthday cakes with a soft touch and without leaving an impression on the surface.

Silencers are not required when using the output flow for cooling, drying, or fume extraction, however they are highly recommended for material handling applications.

Two installation options; simply connect to the vacuum port via the internal NPT threads or slip a hose over the barbs featured on the O.D. You can use CDF Air Amplifiers with and without a vacuum cup.

Handle felt mats with the use of the UH Series rigid cup

Remove cakes from a conveyor and place in box without damage

CDF Series Air Amplifiers Standard Specifications:

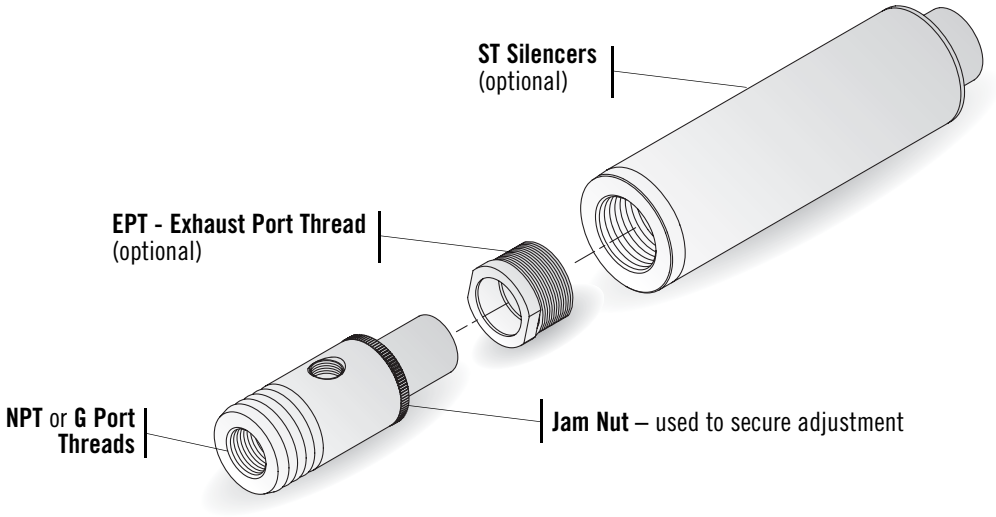
Body Material:	Anodized Aluminum Standard (for silencer material - See pages 235-236)
Medium:	Filtered (50 Micron) un-lubricated, non-corrosive dry gases
Operating Temperature:	-100°~ 400° F [-73°~204°C] without silencer
Operating Pressure:	Variable – For maximum performance Vaccon recommends 50 PSI [3.5 BAR] and above

CDF Series Air Amplifiers Operating and Installation Instructions:

Model:	CDF 100, 200, 200H, 375H	CDF 500H, 750H 1000H, 1500H, 2000H
Supply Line:	1/4" I.D. [4mm] tube recommended	3/8" I.D. [10mm] tube recommended
Control Valve:	Minimum orifice 0.125"	Minimum orifice 0.250"

CDF Series Configurations and Options:

Please configure your Air Amplifier from the options listed below.



How to Specify:

CDF 500 H - EPT100 - ST16FC -

P/N	Vacuum & Air Supply Port Threads	All Exhaust Port Threads are NPT**	Silencer***
CDF 100	NPT	EPT25	ST4AX
CDF 200	NPT	EPT25	ST4AX
CDF 200H	NPT	EPT25	ST4AX
CDF 375H	NPT	EPT38	ST6BX
CDF 500H	NPT	EPT100	ST16FC
CDF 750H	NPT	EPT107	ST16FC
CDF 1000H	NPT	EPT125	ST24FC
CDF 1500H	NPT	EPT200	N/A
CDF 1500H	NPT	Not required	ST2020
CDF 2000H	NPT	N/A	N/A
I-CDF 100	G Port	EPT25	ST4AX
I-CDF 200	G Port	EPT25	ST4AX
I-CDF 200H	G Port	EPT25	ST4AX
I-CDF 375H	G Port	EPT38	ST6BX
I-CDF 500H	G Port	EPT100	ST16FC
I-CDF 750H	G Port	EPT107	ST16FC
I-CDF 1000H	G Port	EPT125	ST24FC
I-CDF 1500H	G Port	EPT200	N/A
I-CDF 1500H	G Port	Not required	ST2020
I-CDF 2000H	G Port	N/A	N/A

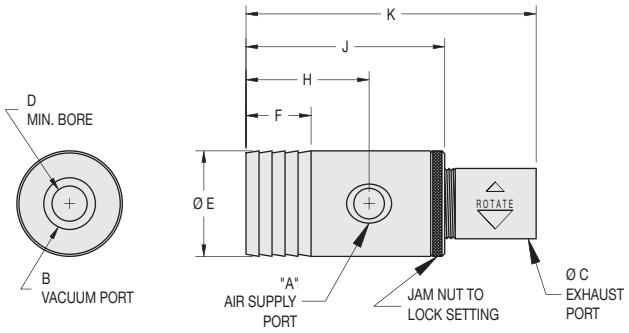
P/N	Material
	Anodized Aluminum
303	303 Stainless Steel*
304	304 Stainless Steel
316	316 Stainless Steel
316L	316 Low Carbon Stainless
PVC	PVC
DEL	Delrin - Acetel

*CDF 750 and larger not available in 303 stainless steel

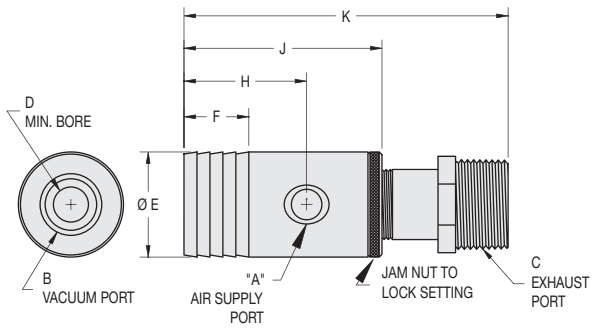
Note 1: **EPT (Exhaust Port Thread) must be factory installed.
Note 2: ***EPT required to attach silencer.

For complete Performance Data, see page 217.

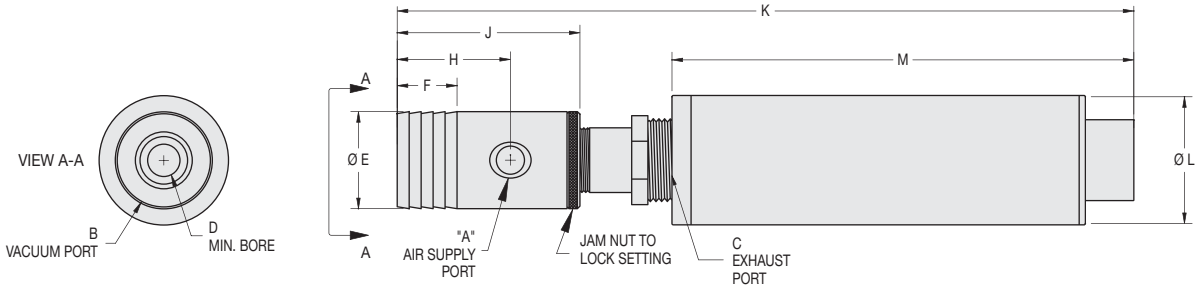
Standard Pump Dimensions: CDF Series (CDF 500H shown is representative sample of all CDF's)



CDF 500H



CDF 500H-EPT100



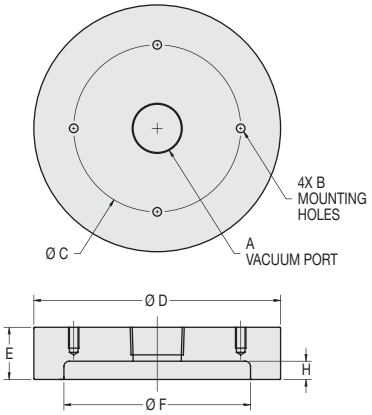
CDF 500H-EPT100-ST16FC

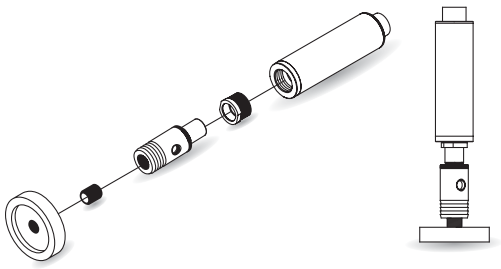
Model #	CDF Series – Imperial Dimensions (in.)											
	A	B	C	D	E	F	H	J	K	L	M	Weight
CDF 100	1/8 NPT F	–	0.56	0.14	1.25	–	0.44	1.13	2.00	–	–	3.2 oz
CDF 100-EPT25	1/8 NPT F	–	1/4 NPT	0.14	1.25	–	0.44	1.13	2.10	–	–	3.2 oz
CDF 100-EPT25-ST4AX	1/8 NPT F	–	1/4 NPT	0.14	1.25	–	0.44	1.13	5.40	1.00	3.57	3.7 oz
CDF 200	1/8 NPT F	–	0.56	0.25	1.25	–	0.44	1.13	2.00	–	–	2.1 oz
CDF 200-EPT25	1/8 NPT F	–	1/4 NPT	0.25	1.25	–	0.44	1.13	2.10	–	–	2.1 oz
CDF 200-EPT25-ST4AX	1/8 NPT F	–	1/4 NPT	0.25	1.25		0.44	1.13	5.40	1.00	3.57	3.7 oz
CDF 200H	1/8 NPT F	3/8 NPT F	0.56	0.25	1.25	0.76	1.21	1.87	2.85	–	–	3.1 oz
CDF 200H-EPT25	1/8 NPT F	3/8 NPT F	1/4 NPT	0.25	1.25	0.76	1.21	1.87	2.85	–	–	3.1 oz
CDF 200H-EPT25-ST4AX	1/8 NPT F	3/8 NPT F	1/4 NPT	0.25	1.25	0.76	1.21	1.87	6.15	1.00	3.57	5.2 oz
CDF 375H	1/8 NPT F	3/8 NPT F	0.69	0.38	1.25	0.76	1.21	1.87	2.85	–	–	3.1 oz
CDF 375H-EPT38	1/8 NPT F	3/8 NPT F	3/8 NPT	0.38	1.25	0.76	1.21	1.87	2.85	–	–	3.1 oz
CDF 375H-EPT38-ST6BX	1/8 NPT F	3/8 NPT F	3/8 NPT	0.38	1.25	0.76	1.21	1.87	7.43	1.25	4.80	6.3 oz
CDF 500H	1/4 NPT F	1/2 NPT F	0.99	0.50	1.49	0.93	1.75	2.83	4.13	–	–	6.3 oz
CDF 500H-EPT100	1/4 NPT F	1/2 NPT F	1 NPT	0.50	1.49	0.93	1.75	2.83	4.63	–	–	7.3 oz
CDF 500H-EPT100-ST16FC	1/4 NPT F	1/2 NPT F	1 NPT	0.50	1.49	0.93	1.75	2.83	11.39	2.00	7.12	14.9 oz
CDF 750H	1/4 NPT F	1 NPT F	1.23	0.75	1.97	0.93	1.75	2.83	4.13	–	–	10.1 oz
CDF 750H-EPT107	1/4 NPT F	1 NPT F	1 NPT	0.75	1.97	0.93	1.75	2.83	5.02	–	–	10.9 oz
CDF 750H-EPT107-ST16FC	1/4 NPT F	1 NPT F	1 NPT	0.75	1.97	0.93	1.75	2.83	11.70	2.00	7.12	1 lb 2 oz
CDF 1000H	1/4 NPT F	1 1/4 NPT F	1.48	1.00	2.22	0.93	1.75	2.83	4.13	–	–	11.5 oz
CDF 1000H-EPT125	1/4 NPT F	1 1/4 NPT F	1 1/2 NPT	1.00	2.22	0.93	1.75	2.83	4.64	–	–	13.2 oz
CDF 1000H-EPT125-ST24F	1/4 NPT F	1 1/4 NPT F	1 1/2 NPT	1.00	2.22	0.93	1.75	2.83	12.00	2.00	7.85	1 lb 5 oz
CDF 1500H	3/8 NPT F	2 NPT F	1.99	1.50	2.72	0.93	1.75	2.83	4.13	–	–	13.3 oz
CDF 1500H-EPT200	3/8 NPT F	2 NPT F	2 NPT	1.50	2.72	0.93	1.75	2.83	4.76	–	–	1 lb
CDF 1500H-ST2020	3/8 NPT F	2 NPT F	Slip fit	1.50	2.72	0.93	1.75	2.83	17.00	3.46	13.62	1 lb 8 oz
CDF 2000H	3/8 NPT F	2 1/2 NPT F	2.49	2.00	3.22	0.93	1.75	2.83	4.13	–	–	1 lb 0.5 oz

Model #	CDF Series – Metric (mm.)											
	A	B	C	D	E	F	H	J	K	L	M	Weight
I-CDF 100	G 1/8	–	14.2	3.6	31.8	–	11.2	28.7	50.8	–	–	91 grams
I-CDF 100-EPT25	G 1/8	–	1/4 NPT	3.6	31.8	–	11.2	28.7	53.3	–	–	91 grams
I-CDF 100-EPT25-ST4AX	G 1/8	–	1/4 NPT	3.6	31.8	–	11.2	28.7	137.2	25.4	90.7	105 grams
I-CDF 200	G 1/8	–	14.2	6.4	31.8	–	11.2	28.7	50.8	–	–	60 grams
I-CDF 200-EPT25	G 1/8	–	1/4 NPT	6.4	31.8	–	11.2	28.7	53.3	–	–	60 grams
I-CDF 200-EPT25-ST4AX	G 1/8	–	1/4 NPT	6.4	31.8		11.2	28.7	137.2	25.4	90.7	105 grams
I-CDF 200H	G 1/8	G 3/8	14.2	6.4	31.8	19.3	30.7	47.5	72.4	–	–	88 grams
I-CDF 200H-EPT25	G 1/8	G 3/8	1/4 NPT	6.4	31.8	19.3	30.7	47.5	72.4	–	–	88 grams
I-CDF 200H-EPT25-ST4AX	G 1/8	G 3/8	1/4 NPT	6.4	31.8	19.3	30.7	47.5	156.2	25.4	90.7	147 grams
I-CDF 375H	G 1/8	G 3/8	17.5	9.5	31.8	19.3	30.7	47.5	72.4	–	–	88 grams
I-CDF 375H-EPT38	G 1/8	G 3/8	3/8 NPT	9.5	31.8	19.3	30.7	47.5	72.4	–	–	88 grams
I-CDF 375H-EPT38-ST6BX	G 1/8	G 3/8	3/8 NPT	9.5	31.8	19.3	30.7	47.5	188.7	31.8	121.9	179 grams
I-CDF 500H	G 1/4	G 1/2	25.1	12.7	37.8	23.6	44.5	71.9	104.9	–	–	179 grams
I-CDF 500H-EPT100	G 1/4	G 1/2	1 NPT	12.7	37.8	23.6	44.5	71.9	117.6	–	–	207 grams
I-CDF 500H-EPT100-ST16FC	G 1/4	G 1/2	1 NPT	12.7	37.8	23.6	44.5	71.9	289.3	50.8	180.8	422 grams
I-CDF 750H	G 1/4	G 1	31.2	19.1	50.0	23.6	44.5	71.9	104.9	–	–	286 grams
I-CDF 750H-EPT107	G 1/4	G 1	1 NPT	19.1	50.0	23.6	44.5	71.9	127.5	–	–	309 grams
I-CDF 750H-EPT107-ST16FC	G 1/4	G 1	1 NPT	19.1	50.0	23.6	44.5	71.9	297.2	50.8	180.8	519 grams
I-CDF 1000H	G 1/4	G 1 1/4	37.6	25.4	56.4	23.6	44.5	71.9	104.9	–	–	326 grams
I-CDF 1000H-EPT125	G 1/4	G 1 1/4	1 1/2 NPT	25.4	56.4	23.6	44.5	71.9	117.9	–	–	374 grams
I-CDF 1000H-EPT125-ST24F	G 1/4	G 1 1/4	1 1/2 NPT	25.4	56.4	23.6	44.5	71.9	304.8	50.8	199.4	595 grams
I-CDF 1500H	G 3/8	G 2	50.5	38.1	69.1	23.6	44.5	71.9	104.9	–	–	377 grams
I-CDF 1500H-EPT200	G 3/8	G 2	2 NPT	38.1	69.1	23.6	44.5	71.9	120.9	–	–	454 grams
I-CDF 1500H-ST2020	G 3/8	G 2	Slip fit	38.1	69.1	23.6	44.5	71.9	431.8	87.9	345.9	692 grams
I-CDF 2000H	G 3/8	G 2 1/2	63.2	50.8	81.8	23.6	44.5	71.9	104.9	–	–	468 grams

UH Series Cups: Material Handling Applications

Material: UHMW





CDF Assembly with UH Cup and attachment

UH Series Cups	Imperial Dimensions (in.)							
	A	B	C	D	E	F	H	Weight
VC-UH6-16	1 NPT	1/4-20 x .50 deep	4.00	5.91	1.25	4.47	0.44	14.8 oz
VC-UH6-16-TL	1 NPT	1/4-20 x .50 deep	4.00	5.91	1.25	5.60	0.44	12.2 oz
	Metric Dimensions (mm)							
	A	B	C	D	E	F	H	Weight
I-VC-UH6-16	G 1	M6 X 1.0 x 12mm deep	101.6	150.1	31.8	113.5	11.2	420 grams
I- VC-UH6-16-TL	G 1	M6 X 1.0 x 12mm deep	101.6	150.1	31.8	142.2	11.2	346 grams

CDF Series Performance Data & Graphs for Ducted Flow

CDF Performance Data – Imperial			
Model #	**Maximum Vacuum Level – "Hg**	**Maximum Vacuum Flow – SCFM**	**Maximum Exhaust Output – SCFM**
CDF 100	15	4	6
CDF 200	9	12	16
CDF 200H	9	12	16
CDF 375H	8	28	36
CDF 500H	7	55	70
CDF 750H	5	110	140
CDF 1000H	3	130	180
CDF 1500H	3	250	300
CDF 2000H	1	330	390
CDF Performance Data – Metric			
Model #	**Maximum Vacuum Level – mbar**	**Maximum Vacuum Flow – 1pm**	**Maximum Exhaust Output – 1pm**
I-CDF 100	508	113	170
I-CDF 200	305	340	453
I-CDF 200H	305	340	453
I-CDF 375H	271	793	1019
I-CDF 500H	237	1557	1982
I-CDF 750H	169	3115	3964
I-CDF 1000H	102	3681	5097
I-CDF 1500H	102	7079	8495
I-CDF 2000H	34	9345	11044

Consult individual performance data charts for air consumption values at desired operation position.

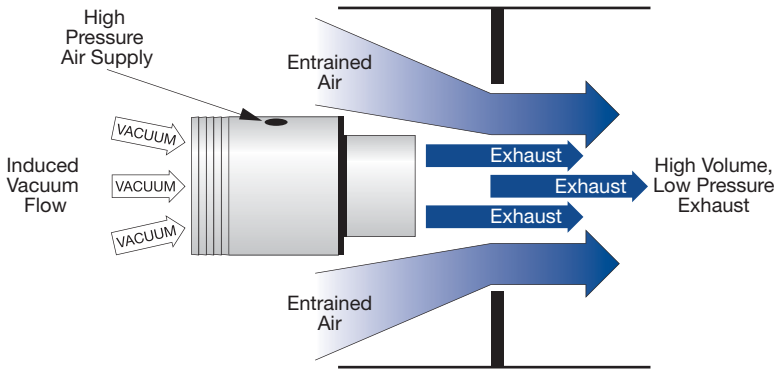
Unducted Flow vs Ducted Flow

Unducted Flow

The amplification ratio of the CDF Series is greatly increased when the output from the amplifier is open to the atmosphere allowing the high speed air flow exiting the amplifier to entrain surrounding air to create a greater flow with amplification ratios up to 40:1. Total output flow is the combination of entrained air, induced air and compressed air.

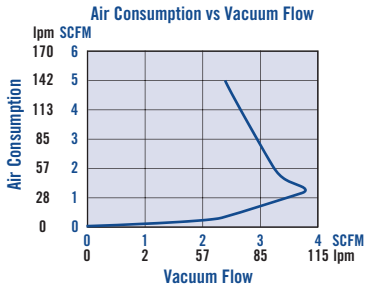
Ducted Flow

When the exhaust side of the amplifier has a duct attached to it, it cannot draw air in from its surroundings. Therefore, amplification is only created by the internal vacuum created at the suction port. Total output flow is the combination of induced flow and compressed air.

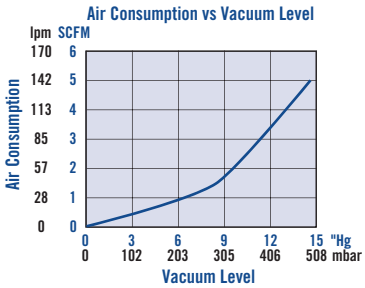


CDF 100 Series

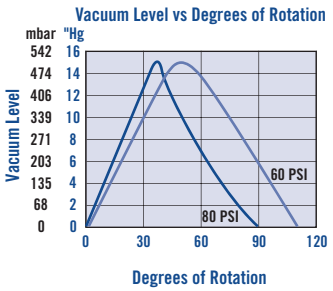
CDF 100



CDF 100-EPT25



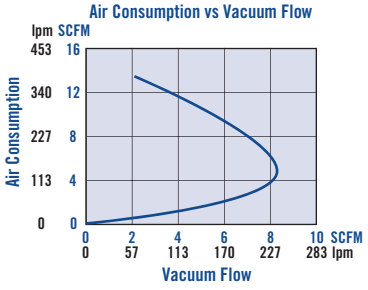
CDF 100-EPT25-ST4AX



CDF 200 & 200H Series

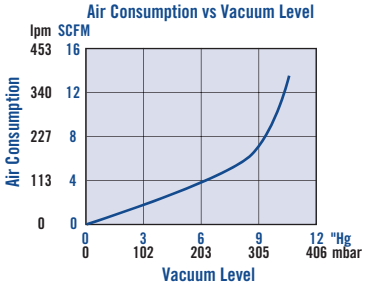
CDF 200

CDF 200H



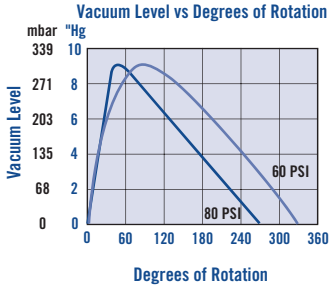
CDF 200-EPT25

CDF 200H-EPT25



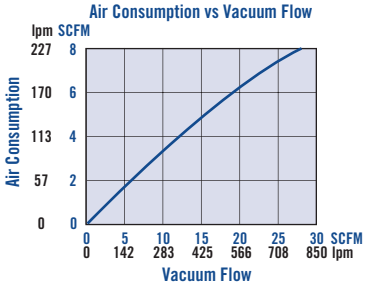
CDF 200-EPT25-ST4AX

CDF 200H-EPT25-ST4AX

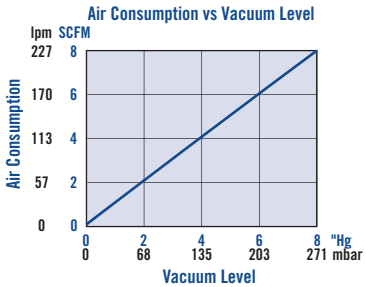


CDF 375H Series

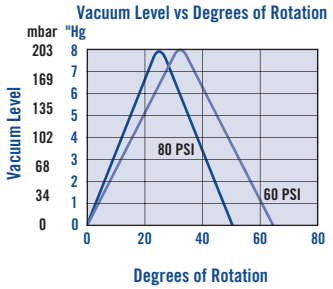
CDF 375H



CDF 375H-EPT38

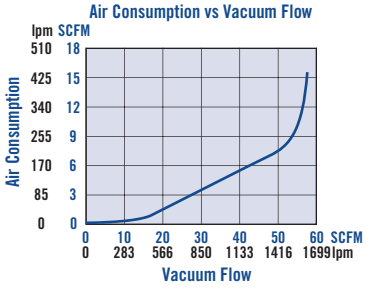


CDF 375H-EPT38-ST6BX

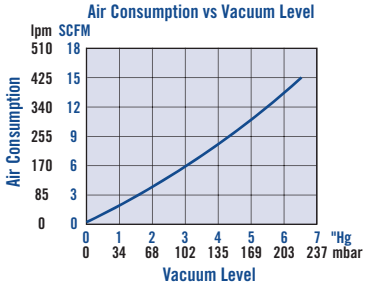


CDF 500H Series

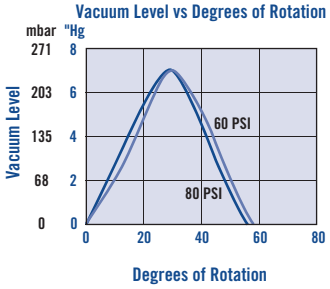
CDF 500H



CDF 500H-EPT100

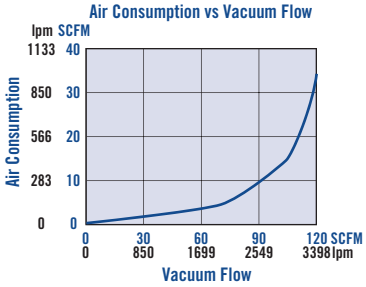


CDF 500H-EPT100-ST16FC

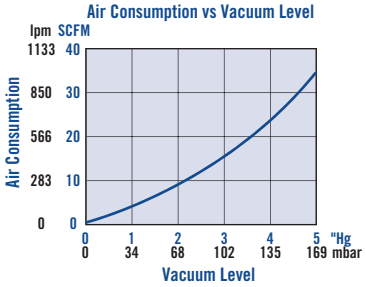


CDF 750H Series

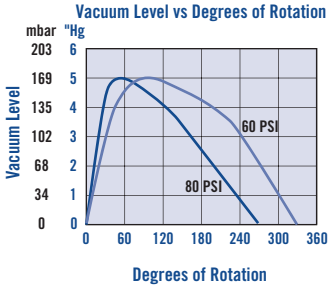
CDF 750H



CDF 750H-EPT107

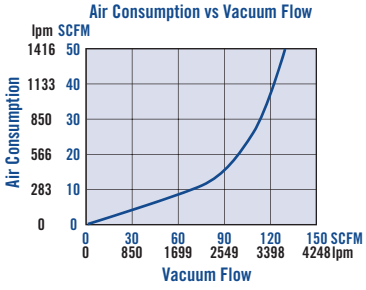


CDF 750H-EPT107-ST16FC

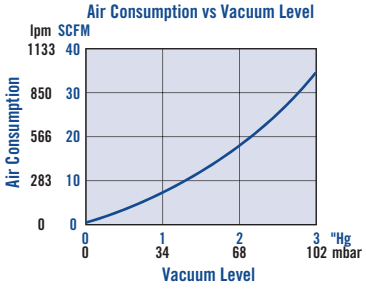


CDF 1000H Series

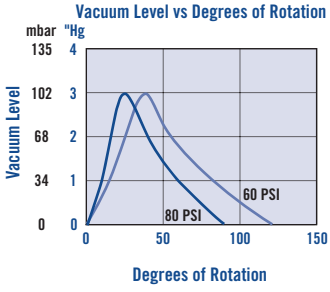
CDF 1000H



CDF 1000H-EPT125

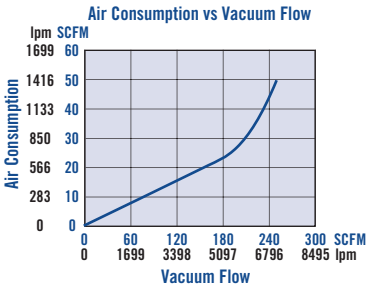


CDF 1000H-EPT125-ST24FC

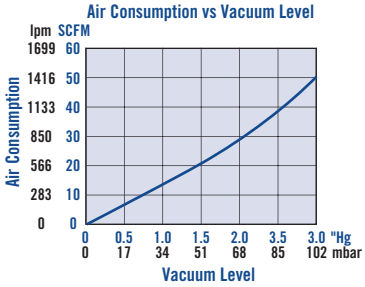


CDF 1500H Series

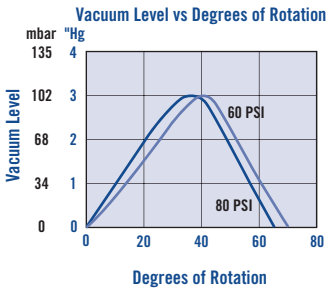
CDF 1500H



CDF 1500H-EPT200

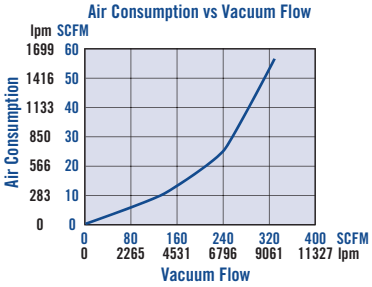


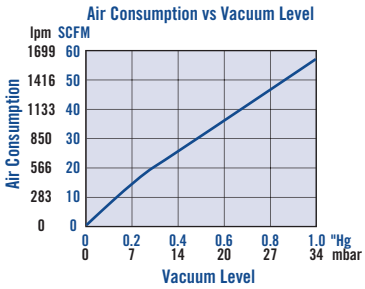
CDF 1500H-ST2020

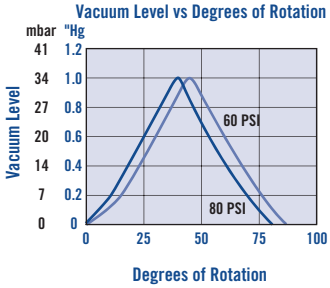


CDF 2000H Series

CDF 2000H







Custom Air Amplifiers – CDF Series

Ideal for OEM engineers and designers

Creative Engineering • Precision Manufacturing • Extensive Application Experience

When off the shelf doesn't work, Vaccon's engineering expertise and manufacturing capabilities can provide custom solutions to your specifications.

Whether it's as simple as modifying a standard product, or more complex requiring new products with specific features, or special materials, Vaccon has the solution.

Specialty Materials:

303, 304, 316 and 316L Stainless steel, PVC, PTFE, Acetal, PEEK and more. For chemical compatibility requirements, high temperature, food, medical and caustic applications, custom materials are available including stainless steel, PEEK, Delrin,™ Teflon,™ PVC.

PVC for chemical resistance.

Stainless Steel for high temperatures or caustic materials.

CDF-750-PM:

Panel mount thread for easy mounting and installation.

Custom Products:

Custom CDF with O-rings (not shown) is part of a sub-assembly incorporated into another piece of equipment for compact design. No external plumbing required.

Custom products for Inflation/Deflation Applications:

Inherent design features in the CDF Series air amplifiers prevents over inflation (bursting), making them the ideal solution for safe inflation and deflation operations.

Custom CDF air amplifier for safe, rapid inflation and deflation of inflatables for the Coast Guard operations

Custom CDF inflates and deflates dunnage bags to protect loads during shipment.

When size, shape, material and performance matter, it's Vaccon Vacuum Pumps.

Material Conveying Vacuum Pumps

DF Series

The DF Series of high flow material conveying vacuum pumps provide a simple, reliable and cost effective method of in-line transfer of bulk materials, complex shapes, individual objects, selvedge.

The DF pump's unique capability to create instantaneous vacuum flow and high air velocity, combined with its straight-through, smooth bore design allows material to pass directly through the pump at high speeds without interference or clogging.

Simply regulate the input pressure to adjust and control the transfer speed. For maximum efficiency, the compact design allows close placement to the work area.

DF Series material conveying pumps are made of anodized aluminum and available in 17 standard models with inside diameters from 1/8" [6mm] to 4" [100mm].

Features/Benefits

- **Application versatility**
- **Efficient – instant on and off, low operating costs**
- **Fast response – installs close to vacuum point**
- **Easy to install – simply connect tubing to the vacuum and exhaust ports, and supply compressed air**
- **Safe operation – no electricity needed at the pump**
- **Reliable – trouble-free operation:**
  - **~ Straight-through design, non-clogging**
  - **~ No moving parts to wear or clog**
  - **~ No flap valves to stick open**
  - **~ No maintenance**
  - **~ No downtime**

Pump Options:

- Internal and external threaded exhaust and/or vacuum ports
- G port threads for metric machines – an "I" prefix designates products with metric threads
- Teflon™ or hardcoat anodizing
- For chemical compatibility, heat and environmental requirements, food and medical applications, custom materials, special coatings and modified threads are available.

Applications:

Bulk Materials:
- Granulated Plastics
- Seasonings
- Dry Powders
- Ball Bearings
- Paper Strips
- Wood Chips
- Molded Items
- Game Pieces
- Food Products
- Pharmaceutical Products
- Chip Removal in Machining Operations
- Caustic or Hazardous Materials

Individual Objects:
- Pens And Pen Caps
- Bottle Caps
- Pills, Tablets
- Electronic Components
- Springs
- Packaged Products
- Spark Plugs
- Needles
- Screwdrivers
- Bearings
- Engine Valves
- Golf Balls

Trim, Selvedge and Fiber Collection:
- Transfer Selvedge from Trimming Operations
- Wind, Unwind, Manage Continuous Strips
- Waste Removal for Manual and Automatic Operations
- Drying
- Assists Central Collection Systems

Vaccon Fun Fact: **Our first product developed was a vacuum conveying product, thus our name *VAC*uum *CON*veying**

Eliminate the Guesswork: Contact Us!

Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

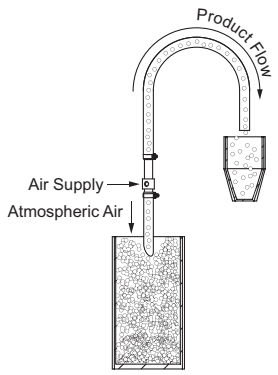
To download a complete set of drawings in 13 different CAD formats, please visit our website at www.vaccon.com

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email engineering@vaccon.com

General Application Information

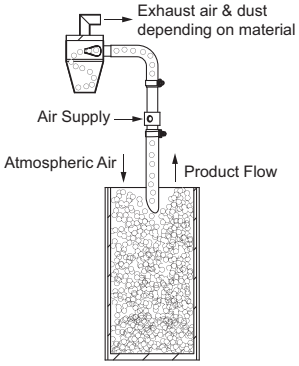
Sizing the correct DF material transfer pump is based on the material density, particle size, transfer rate required (kg/min), elevation and length of transfer line. For application assistance, please contact Vaccon Technical Support. In many cases, customers send product to Vaccon to test at our in-house test facility. Ask about our 30-Day Test & Evaluation policy.

Transfering Bulk Materials:



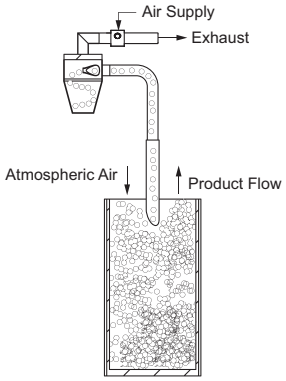
Basic Hopper

Place pump about 1/3 the overall distance from the suction. Allow the compressed air powering the pump to assist in pushing the material to the collection hopper.



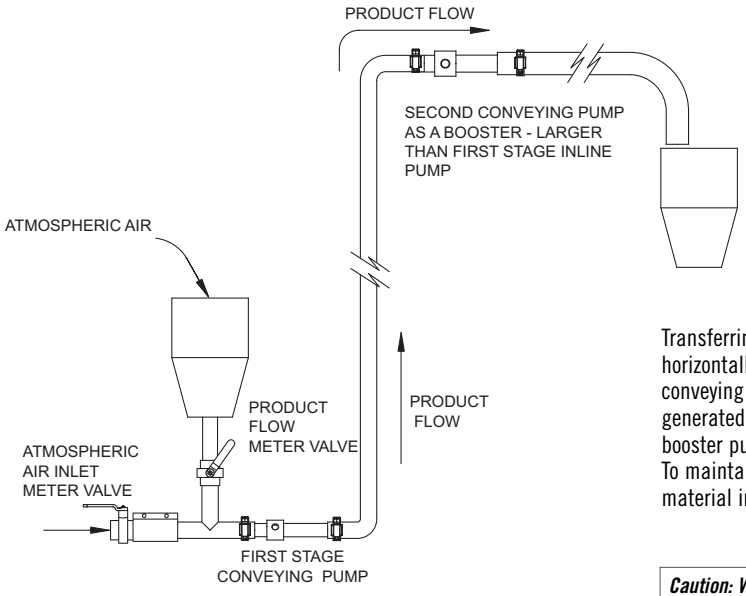
Hopper Inlet

Induced atmospheric air, compressed air and the material being transferred enter the collection hopper, where the material falls by gravity. The air vents out the top of the hopper. To capture lighter-than-air materials, connect a filter or dust collector to the hopper outlet.



Hopper Outlet

The DF pump creates a vacuum in the collection hopper causing the material to flow up the conveyor tube into the collection hopper. Compressed air doesn't mix with the material, helping to prevent a cloud from forming when transferring fine, light powders. Material entering the hopper falls to the bottom faster due to the vacuum in the collection hopper. To reduce noise, add an optional silencer to the DF pump exhaust.

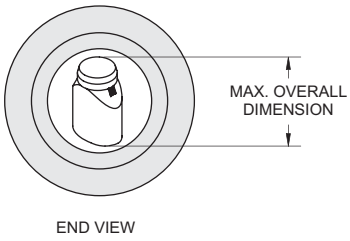


Hopper to Hopper Butterfly Extended Distance

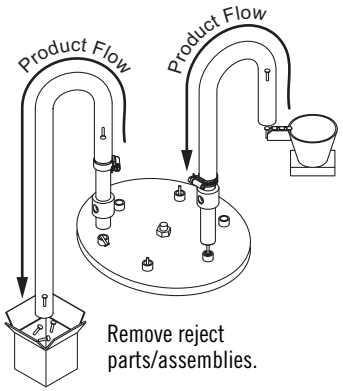
Transferring bulk and individual items vertically and horizontally over long distances may require a second conveying pump as a booster pump. To accept the flow generated by the first pump and to add power, add a booster pump that is larger than the first-stage pump. To maintain the proper balance between air intake and material intake use a valve to meter both.

Caution: When conveying materials through plastic transfer lines, you must ground the transfer line to dissipate the static charge that develops from the friction of the air and material flowing over the transfer line surface.

Transferring Complex Shapes & Individual Objects:

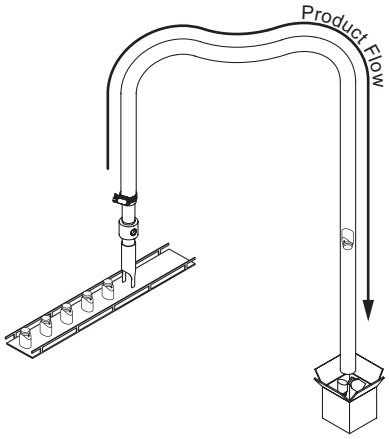


To size a DF pump for transferring individual items, choose the pump with an inside diameter just slightly larger than the largest dimension of the object.

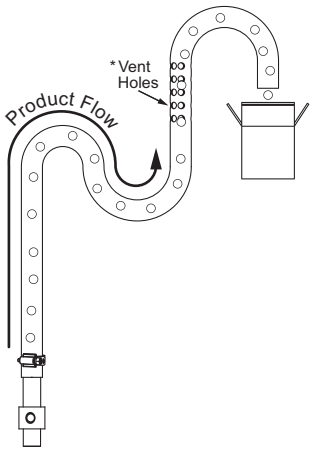


Load parts for assembly from a vibratory bowl feeder.

Remove reject parts/assemblies.



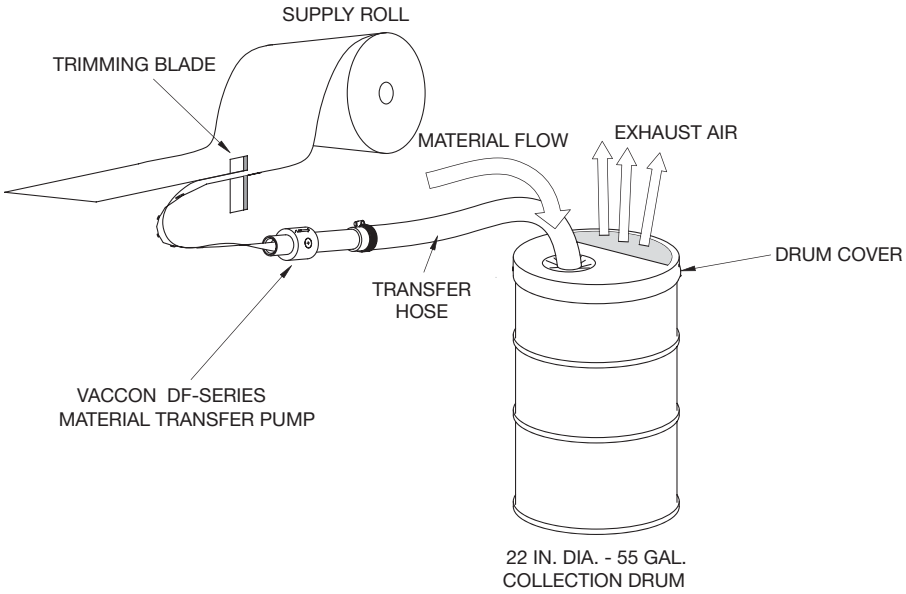
Remove non-conforming parts from conveyor line.



Design Tip: To prevent damage or to match the assembly speed, decrease the transfer speed by introducing a vertical bend into the tube, allowing gravity to work against the direction of travel.

* To reduce transfer speed further, add holes in the tube to allow the air to vent.

Trim, Selvedge and Fiber Collection:

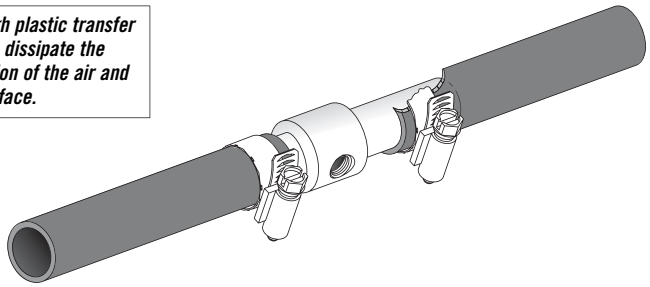


Installation Options:

For simple applications, place the DF pump in the transfer line, slip the transfer hose over the outside diameter of the pump and secured in place with a hose clamp.

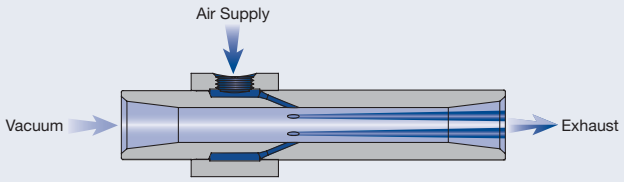
When this type of installation is not desired or appropriate for the application, Vaccon offers the option of adding threads to the O.D. and the I.D. Please see page 231 for optional vacuum & exhaust port threads.

Caution: When conveying materials through plastic transfer lines, you must ground the transfer line to dissipate the static charge that develops from the friction of the air and material flowing over the transfer line surface.



Principles of Operation:

Compressed air is fed into an exterior annular ring that has a number of orifices leading into the main tube of a transducer. As the compressed air exits from the orifices, its velocity increases to supersonic speed. The air forced into the center of the tube rotates with a twisting motion similar to a worm screw. This cyclonic flow creates a powerful vacuum capable of drawing materials into and through the transducer. As a vacuum source, the DF Series are capable of rapid evacuation of a large volume of air to a low vacuum level.

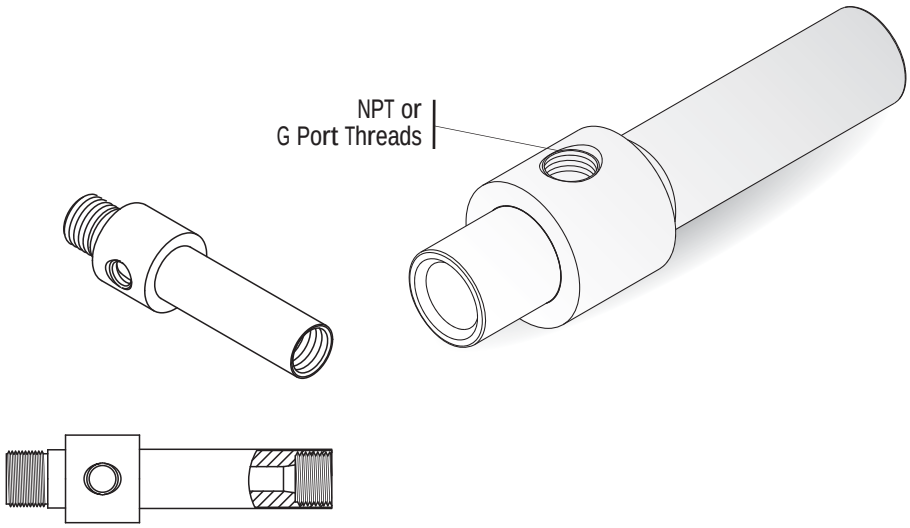


DF Series Material Conveying Pumps Standard Specifications:

Body Material:	Anodized Aluminum Standard
Medium:	Filtered (50 Micron) unlubricated, non-corrosive, dry gases
Operating Temperature:	-100°~ 400° F [-73°~204°C]
Operating Pressure:	Input pressure of 40 PSI or less is sufficient to move most bulk materials and individual objects
Supply Pressure:	Regulate the supply pressure to develop the necessary transfer speed for your application

DF Series Configurations and Options:

All Vaccon pumps offer a variety of options and accessories to meet your specific requirements. Please configure your pump from the options listed below.



Optional Threaded Ports:
Optional internal or external threaded vacuum and/or exhaust ports.

How to Specify:

DF 5-6 - TV50/TE50 - 304

Standard (Non-Threaded) DF Series			
		Recommended	
P/N NPT	P/N G Port	Air Supply Line	Transfer Hose
DF 1-3	I-DF 1-3	1/4	3/4" I.D.
DF 2-3	I-DF 2-3	1/4	3/4" I.D.
DF 3-3	I-DF 3-3	1/4	3/4" I.D.
DF 3-6	I-DF 3-6	3/8	3/4" I.D.
DF 5-3	I-DF 5-3	3/8	1" I.D.
DF 5-6	I-DF 5-6	3/8	1" I.D.
DF 7-3	I-DF 7-3	1/2	1 1/4" I.D.
DF 7-6	I-DF 7-6	1/2	1 1/4" I.D.
DF 10-3	I-DF 10-3	1/2	1 1/2" I.D.
DF 10-6	I-DF 10-6	1/2	1 1/2" I.D.
DF 12-3	I-DF 12-3	1/2	1 3/4" I.D.
DF 12-6	I-DF 12-6	1/2	1 3/4" I.D.
DF 15-3	I-DF 15-3	1/2	2" I.D.
DF 15-6	I-DF 15-6	1/2	2" I.D.
DF 20-3	I-DF 20-3	1/2	2 1/2" I.D.
DF 20-6	I-DF 20-6	1/2	2 1/2" I.D.
DF 30-6	I-DF 30-6	3/4	3 1/2" I.D.
DF 40-12	I-DF 40-12	3/4	5" I.D.

Optional Threaded Ends			
Internal Vacuum Port	Internal Exhaust Port	External Vacuum Port	External Exhaust Port
TV-25	TE-25	MTV-38	MTE-38
TV-25	TE-25	MTV-38	MTE-38
TV-25	TE-25	MTV-38	MTE-38
TV-25	TE-25	MTV-38	MTE-38
TV-50	TE-50	MTV-50	MTE-50
TV-50	TE-50	MTV-50	MTE-50
TV-75	TE-75	MTV-100	MTE-100
TV-75	TE-75	MTV-100	MTE-100
TV-100	TE-100	MTV-100	MTE-100
TV-100	TE-100	MTV-100	MTE-100
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
TV-125	TE-125	MTV-150	MTE-150
TV-125	TE-125	MTV-150	MTE-150
TV-200	TE-200	MTV-200	MTE-200
TV-200	TE-200	MTV-200	MTE-200
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

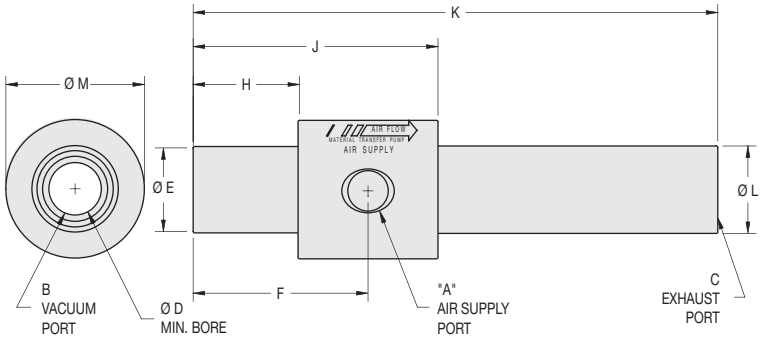
P/N	Material
	Anodized Aluminum (Std.)
303*	Stainless Steel
304	Stainless Steel
316	Stainless Steel
316L	Low Carbon Stainless
PVC	PVC
PEEK	PEEK
TEF	Teflon®
DEL	Delrin®

*303 Stainless Steel only available for DF 1-3, 2-3, 3-3, and 3-6. Not available in larger size pumps.

For complete Performance Data, see page 227.

Please note: Male and female threads can be ordered on different ends of the same pump. i.e. DF 5-6-TV50/MTE50
Please note: Custom materials are not stock items. Consult factory for availablity.
Please note: Special anodizing available. i.e. Teflon™ hardcoat, hard anodize, etc. Consult factory.

Standard Material Conveying Pump: DF Series (DF 7-6 shown is representative sample of all DF's)



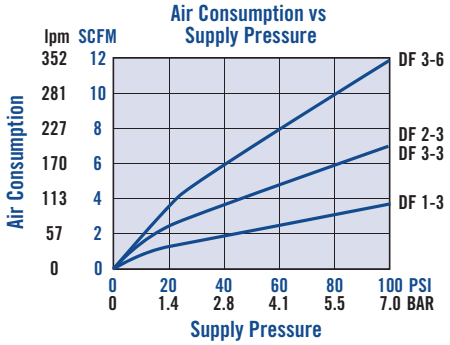
Model #	DF Series – Imperial Dimensions (in.)													
	A	B Optional Male Vacuum Thread	C Optional Male Exhaust Thread	B Optional Female Vacuum Thread	C Optional Female Exhaust Thread	D Minimum Bore	E	F	H	J	K	L	M	Weight
DF 1-3	1/8 NPT F	3/8" NPT	3/8" NPT	1/4" NPT	1/4" NPT	0.15	0.73	1.25	0.75	1.75	3.50	0.74	1.24	3.4 oz
DF 2-3	1/8 NPT F	3/8" NPT	3/8" NPT	1/4" NPT	1/4" NPT	0.25	0.73	1.25	0.75	1.75	3.50	0.74	1.24	3.2 oz
DF 3-3, 6	1/8 NPT F	3/8" NPT	3/8" NPT	1/4" NPT	1/4" NPT	0.38	0.73	1.25	0.75	1.75	3.50	0.74	1.24	2.8 oz
DF 5-3, 6	1/4 NPT F	1/2" NPT	1/2" NPT	1/2" NPT	1/2" NPT	0.50	0.99	1.62	1.00	2.25	5.50	1.00	1.48	6.2 oz
DF 7-3, 6	3/8 NPT F	1" NPT	1" NPT	3/4" NPT	3/4" NPT	0.75	1.24	2.50	1.50	3.50	7.50	1.25	1.98	13.4 oz
DF 10-3, 6	3/8 NPT F	1" NPT	1" NPT	1" NPT	1" NPT	1.00	1.46	2.50	1.50	3.50	7.50	1.48	2.23	1 lb 5 oz
DF 12-3, 6	3/8 NPT F	*	*	*	*	1.25	1.71	2.50	1.50	3.50	7.50	1.73	2.47	1 lb 3 oz
DF 15-3, 6	3/8 NPT F	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1.50	1.96	2.50	1.50	3.50	7.50	1.98	2.73	1 lb 5 oz
DF 20-3, 6	3/8 NPT F	2" NPT	2" NPT	2" NPT	2" NPT	2.00	2.46	2.50	1.50	3.50	7.50	2.48	3.23	1 lb 9 oz
DF 30-6	1/2 NPT F	N/A	N/A	N/A	N/A	3.00	3.46	2.50	1.50	3.50	8.50	3.48	4.47	3 lbs 6 oz
DF 40-12	3/4 NPT F	N/A	N/A	N/A	N/A	4.00	4.89	3.25	2.00	4.50	9.50	4.95	5.58	6 lbs 11 oz

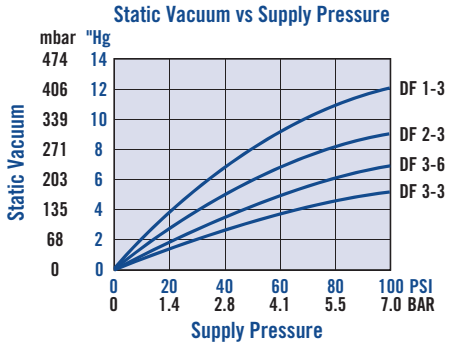
Model #	DF Series – Metric Dimensions (mm.)													
	A	B Optional Male Vacuum Thread	C Optional Male Exhaust Thread	B Optional Female Vacuum Thread	C Optional Female Exhaust Thread	D Minimum Bore	E	F	H	J	K	L	M	Weight
I-DF 1-3	G 1/8	G 3/8	G 3/8	G 1/4	G 1/4	3.8	18.4	31.8	19.1	44.5	88.9	18.8	31.5	96g
I-DF 2-3	G 1/8	G 3/8	G 3/8	G 1/4	G 1/4	6.4	18.4	31.8	19.1	44.5	88.9	18.8	31.5	91g
I-DF 3-3, 6	G 1/8	G 3/8	G 3/8	G 1/4	G 1/4	9.7	18.4	31.8	19.1	44.5	88.9	18.8	31.5	79g
I-DF 5-3, 6	G 1/4	G 1/2	G 1/2	G 1/2	G 1/2	12.7	25.0	41.1	25.4	57.2	139.7	25.4	37.6	176g
I-DF 7-3, 6	G 3/8	G 1	G 1	G 3/4	G 3/4	19.1	31.4	63.5	38.1	88.9	190.5	31.8	50.3	380g
I-DF 10-3, 6	G 3/8	G 1	G 1	G 1	G 1	25.4	37.1	63.5	38.1	88.9	190.5	37.6	56.6	468g
I-DF 12-3, 6	G 3/8	*	*	*	*	31.8	43.4	63.5	38.1	88.9	190.5	43.9	62.7	541g
I-DF 15-3, 6	G 3/8	G 1 1/4	G 1 1/4	G 1 1/4	G 1 1/4	38.1	49.8	63.5	38.1	88.9	190.5	50.3	69.3	607g
I-DF 20-3, 6	G 3/8	G 2	G 2	G 2	G 2	50.8	62.5	63.5	38.1	88.9	190.5	63.0	82.0	777g
I-DF 30-6	G 1/2	N/A	N/A	N/A	N/A	76.2	87.9	63.5	38.1	88.9	215.9	88.4	113.5	1.4kgs
I-DF 40-12	G 3/4	N/A	N/A	N/A	N/A	101.6	124.2	82.6	50.8	114.3	241.3	125.7	148.6	3kgs

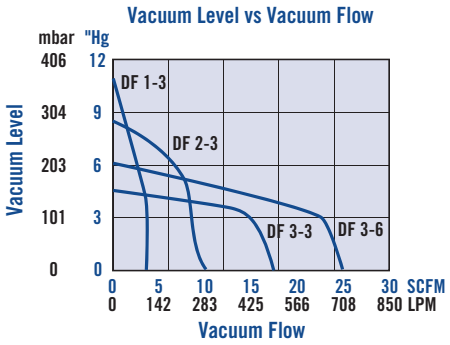
*__Note:__ Consult Factory.

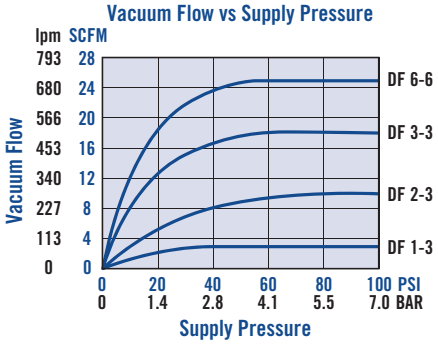
DF Material Conveying Pumps – Performance Graphs

DF 1-3, DF 2-3, DF 3-3, DF 3-6

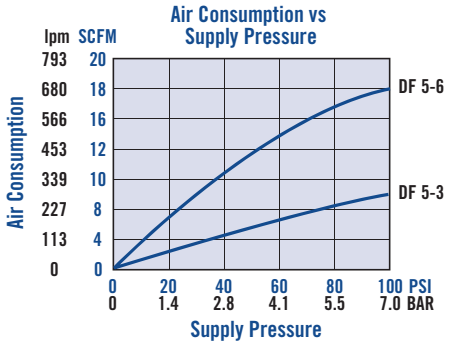


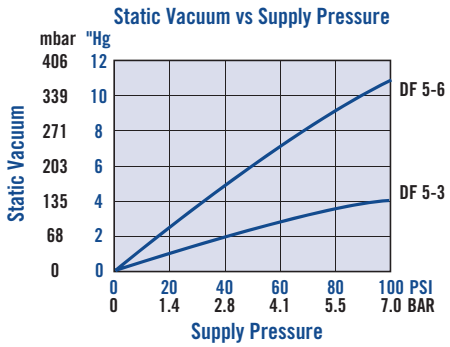


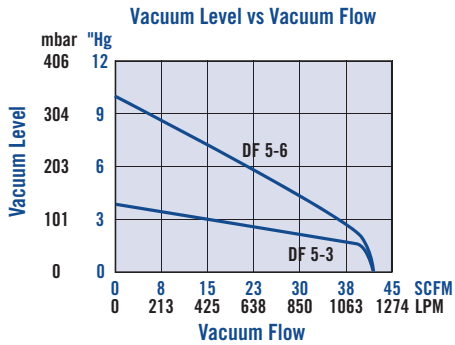


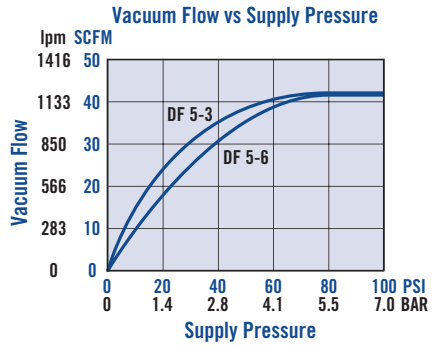


DF 5-3, DF 5-6



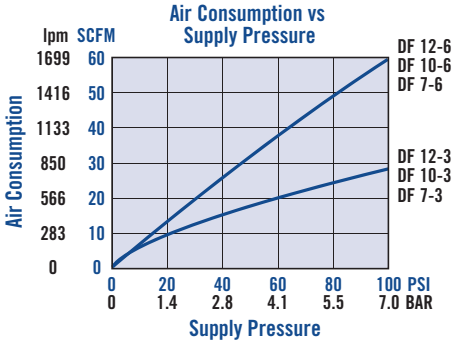


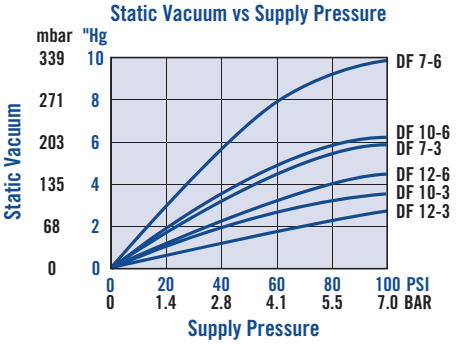


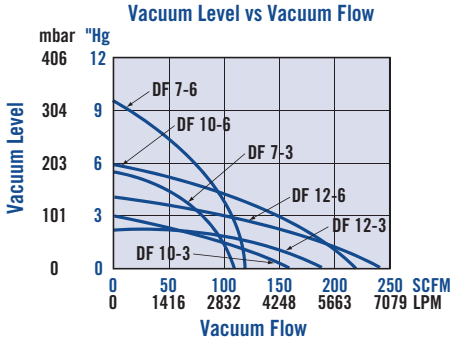


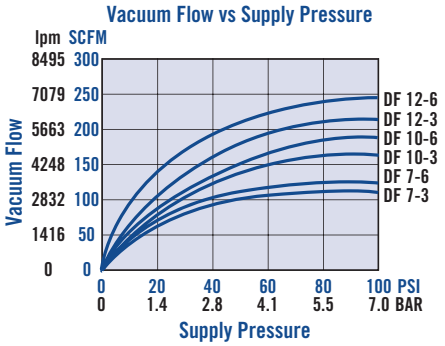
Operating Note: Above 40 PSI, the increased energy consumed through rising air consumption is converted into increased vacuum level while vacuum flow stays constant. It is the vacuum flow that provides the motive force for the materials to be transferred. Higher vacuum levels are useful when lifting high molecular weight bulk materials and heavy individual objects long distances vertically.

DF 7-3, DF 7-6, DF 10-3, DF 10-6, DF 12-3, DF 12-6

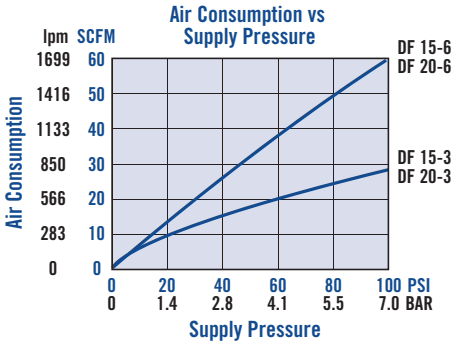


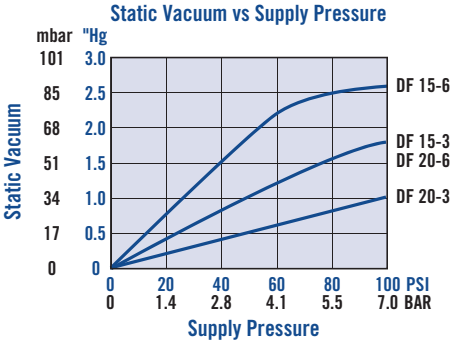


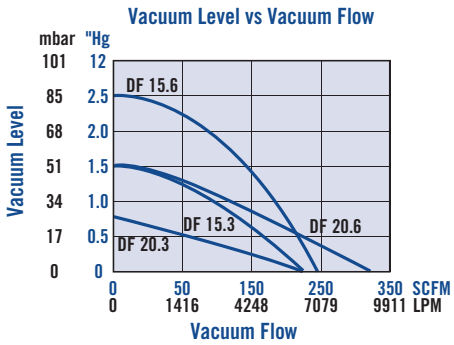


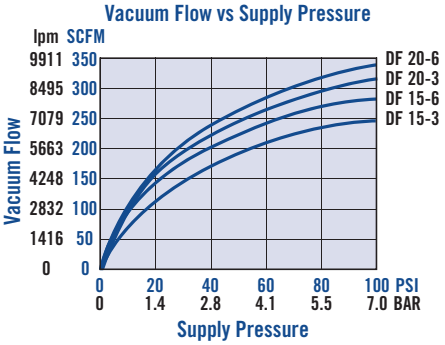


DF 15-3, DF 15-6, DF 20-3, DF 20-6









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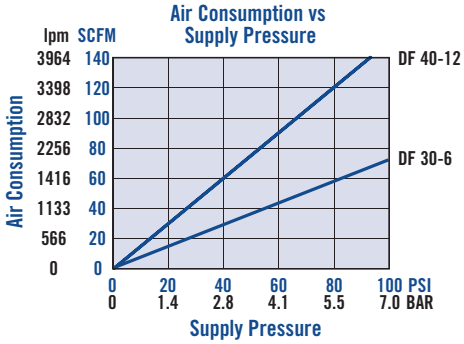
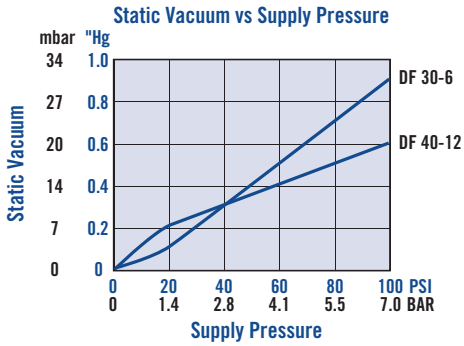
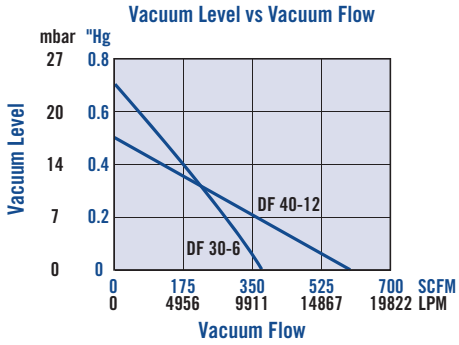
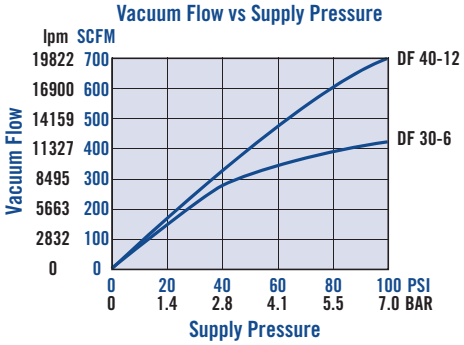
DF 30-6, DF 40-12









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Custom Material Conveying Pumps – DF Series

Ideal for OEM engineers and designers

Creative Engineering • Precision Manufacturing • Extensive Application Experience

When off the shelf doesn't work, Vaccon's engineering expertise and manufacturing capabilities can provide custom solutions to your specifications.

Whether it's as simple as modifying a standard product, or more complex requiring new products with specific features, or special materials, Vaccon has the solution.

Vaccon customizes more DF pumps than any other product line.

Custom Materials:

When transferring highly abrasive, caustic or food grade materials, Vaccon offers the DF Series material conveying pumps in several grades of stainless steel – 303, 304, 316, 316L, Delrin®, Teflon®, PVC, PEEK, as well as hardcoat and Teflon® coated anodizing.

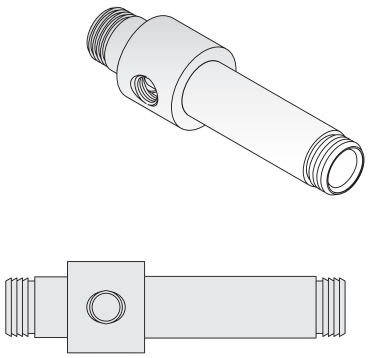
Custom Shapes and Sizes:

Custom stainless steel DF with integral Tri-clover® clamp for food industry.

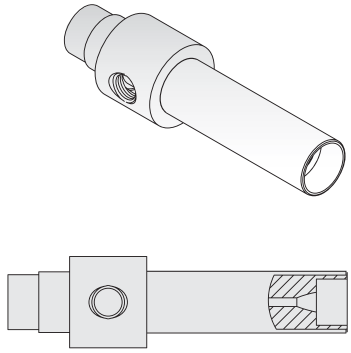
Custom End Configurations/Connections:

When size, shape, material and performance matter, it's Vaccon Vacuum Pumps.

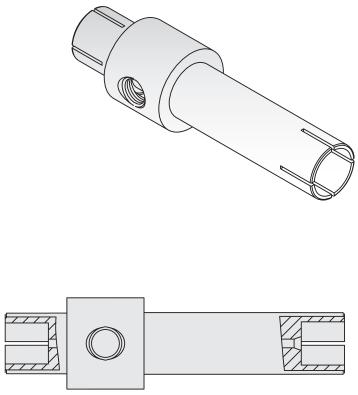
DF Custom End Connections



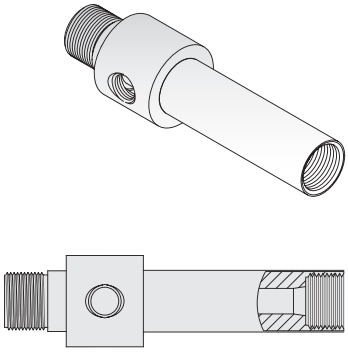
Barbs grip securely on flexible tubing, no clamps required



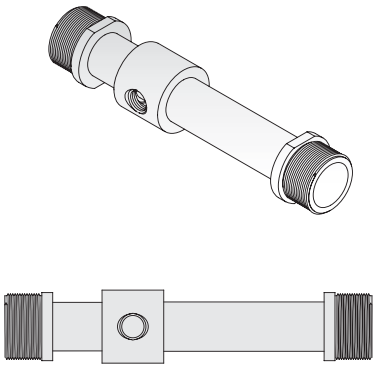
Combined turned OD with counter bored ID to match customer design



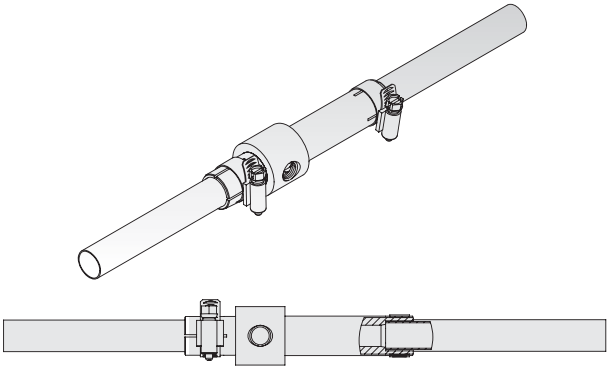
Slotted: Counter bored to match transfer tube for smooth transition



Optional OD and ID threads. See tables on Page 226

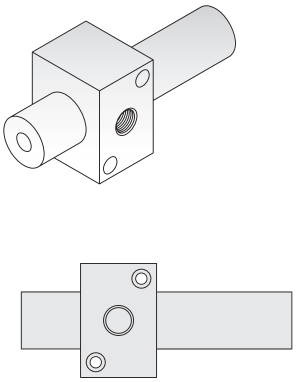


Threaded Adapter: Oversized threads available

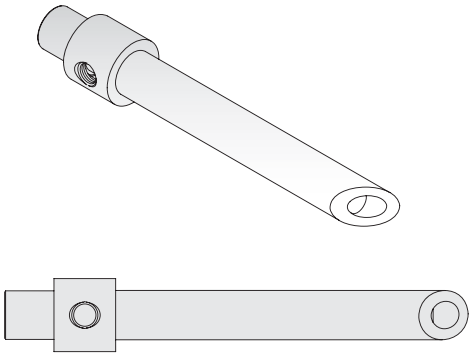


Slotted with screw clamp for clamping OD of transfer tube

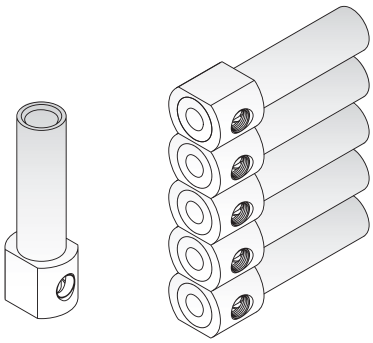
DF Pumps – Custom Shaped



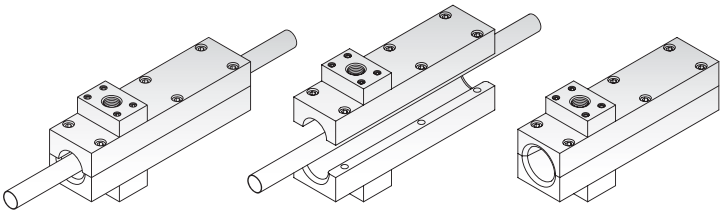
Square collar aids in mounting



Extended length with angle for stuffing stuffed animals



DF notched multi-pump – close centers designed for picking and placing compression springs



DFR – split design surrounds continuous fibers, wires, tubing etc., for drying and cooling

AA Series Silencers

Configurator, CAD Drawings, and On-line Store

Click Here

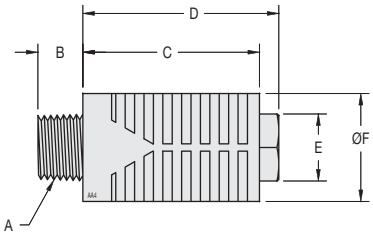
AA Series silencers have excellent noise reducing characteristics with minimal resistance to air flow. AA Series silencers are one third smaller than comparable products, providing considerable space savings. The large surface of the felt element resists contamination far more than other materials such as sintered bronze, steel mesh or porous polyethylene.

Features:

- Compact
- Lightweight
- Durable
- 4 Thread sizes 1/8, 1/4, 3/8, 1/2
- Closed-end silencer

Benefits:

- Maximize performance – silences pneumatic equipment without back pressure.
- Increase productivity and operator safety – reduces irritating noise, improves working environment
- Closed-end silencer – contaminants can't escape
  - ~ maintains clean environment
  - ~ reduces maintenance costs
  - ~ increases equipment life



Model #		Dimensions						Weight	Construction				Noise Level
		A*	B	C	D	E	F		Body	Baffle	Screen	Element	
AA2	in.	1/8	0.23	0.97	1.08	0.39	0.61	0.1 oz	Nylon	Nylon	Nylon	Felt	58dB
	mm.		5.8	24.6	27.4	9.91	15.5	3 g					
AA4	in.	1/4	0.32	1.26	1.39	0.47	0.77	0.2 oz					62dB
	mm.		8.1	32.0	35.3	11.94	19.6	6 g					
AA6	in.	3/8	0.41 [10.4]	1.74 [44.2]	1.86 [47.2]	0.62 [15.75]	0.96 [24.4]	0.4 oz [11 g]					70dB
	mm.												
AA8	in.	1/2											72dB
	mm.												

**Fits NPT, BSPP and BSPT threads.*

AA Series Silencers Operating Specifications:

Max. Operating Pressure: Not to exceed 150 PSI

Noise level: Measured 4.5 ft on the diagonal from the silencer while attached to a Vaccon pump. Noise levels will vary on Vaccon and non-Vaccon products.

Note 1: Vaccon strongly recommends the use of silencers on all vacuum pumps.

Note 2: Vaccon silencers are used on all types of pneumatic devices such as air-operated vacuum pumps, air motors, valves, cylinders and more.

How to Specify:

- **For Silencer only:** Order by Model #.
- **Vaccon pump/silencer combinations:** Vaccon pumps include a silencer(s) that has been sized to ensure maximum pump performance. See specific pump for silencer options.
- **Non-Vaccon pneumatic devices:** The thread size on the exhaust port of the pneumatic device determines the size of the silencer.
- Equipment and applications may vary. Consult factory for proper silencer selection.

ST Series Silencers

ST Silencers - male and female threads

Configurator, CAD Drawings, and On-line Store

Click Here

VDF 250-ST4A-2

Features:

- Straight-through design
- Felt liner provides low frequency sound
- Male and female connections
- 18 models

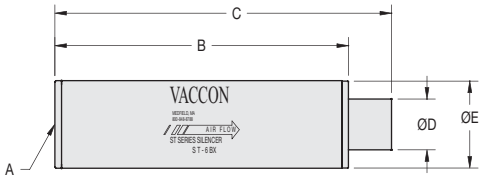
Benefits:

- Reliable – straight through design – non-clogging
- Maximize performance – silences pneumatic equipment without back pressure
- Increase productivity and operator safety – reduces irritating noise, improves working environment
- Increase savings – reduces maintenance costs, increases equipment life

The ST Series Silencers are designed with a straight through flow path that eliminates clogging by allowing the contaminants to pass directly through the silencer. Each silencer is tuned in proportion to its exhaust flow to minimize noise.

As air passes through the silencer, the dense felt element absorbs the noise, thus reducing high pitch exhaust noise to a gentle, low frequency sound. Even in the most adverse conditions,contaminates pass through the silencer making the ST Series ideal for silencing vacuum pumps that are continuously ingesting dirt and debris.

ST Series Silencers: Female Threads



ST Series - female threads

Model #		Dimensions					Weight	Construction		Noise Level
		A	B	C	D	E		Body	Element	
ST4AX	in.	1/4" NPT F	3.19	3.56	0.50 [12.7]	1.00 [25.4]	1.8 oz	Anodized Aluminum	Felt	75dB
	mm.		81.0	90.4			51 g			
ST6BX	in.	3/8" NPT F	4.19	4.82			3.4 oz			77dB
	mm.		106.4	122.4			96 g			
ST16FC	in.	1" NPT F	6.39	7.14	1.25 [31.8]	2.00 [50.8]	7.6 oz			80dB
	mm.		162.3	181.4			215 g			
ST24FC	in.	1 1/2" NPT F	7.10	7.85			7.9 oz			82dB
	mm.		180.3	199.4			224. g			

ST Series Silencers Specifications:

Max. Operating Pressure: Not to exceed 150 psig

Noise level: Measured 4.5 ft on the diagonal from the silencer while attached to a Vaccon pump. Noise levels will vary on Vaccon and non-Vaccon products.

Note 1: Vaccon strongly recommends the use of silencers on all vacuum pumps.

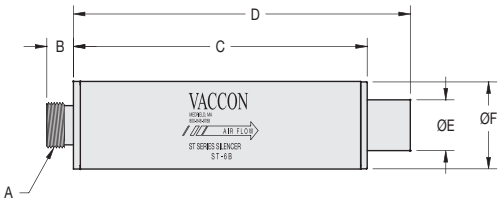
Note 2: Vaccon silencers are used on all types of pneumatic devices i.e. air-operated vacuum pumps, air motors, valves, cylinders and more.

Note 3: ST Silencers may be used on all Vaccon vacuum pumps.

How to Specify:

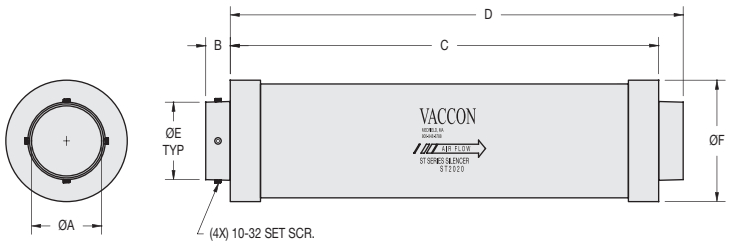
- **For Silencer only:** Order by Model #.
- **Vaccon pump/silencer combinations:** Vaccon pumps include a silencer(s) that has been sized to ensure maximum pump performance. See specific pump for silencer options.
- **Non-Vaccon pneumatic devices:** The thread size on the exhaust port of the pneumatic device determines the size of the silencer.
- Equipment and applications may vary. Consult factory for proper silencer selection.

ST Series Silencers: Male Threads



Model #		Dimensions						Weight	Construction		Noise Level
		A	B	C	D	E	F		Body	Element	
ST2	in.	1/8" NPS M	0.30 7.6	0.63	1.00	0.20	0.63	0.2 oz	Acetal	N/A	68dB
	mm.			16.0	25.4	5.1	16.0	6 g			
ST4	in.	1/4" NPS M		1.49	1.86	0.35	0.75	0.6 oz		Felt	
	mm.			37.8	47.2	8.9	19.1	17 g			
ST4A	in.		0.37 9.4	3.19	3.56	0.50 [12.7]	1.00 25.4	1.8 oz	Anodized Aluminum		70dB
	mm.			81.0	90.4			51 g			
ST4A-2	in.			2.18	2.56			1.4 oz			72dB
	mm.			55.4	65.0			40 g			
ST6A	in.	3/8" NPS M	0.38 9.7	3.19	3.56			1.8 oz			
	mm.			81.0	90.4			51 g			
ST6B	in.			4.19	4.82	0.72	1.25	3.1 oz			
	mm.			106.4	122.4	18.3	31.8	88 g			
ST8A	in.	1/2" NPS M		3.19	3.56	0.50	1.00	1.8 oz			74dB
	mm.			81.0	90.4	12.7	25.4	51 g			
ST8B	in.			4.19	4.82	0.72	1.25	3.1 oz			76dB
	mm.			106.4	122.4	18.3	31.8	88 g			
ST12C	in.	3/4" NPS M	0.50 12.7	6.18 [157.0]	6.93 [176.0]	1.25 [31.8]	2.00 [50.8]	7.8 oz			80dB
	mm.							221 g			
ST16C	in.	1" NPS M						7.7 oz			
	mm.							218 g			

Note: All NPS threads fit G Port threads



Model #		Dimensions						Weight	Construction		Noise Level
		A	B	C	D	E	F		Body	Element	
ST2020	in.	Ø 1.99	0.70 17.8	12.23 310.6	12.93 328.4	2.21 56.1	3.46 87.9	11 oz	PVC	Foam	82dB
	mm.							311 g			
ST2020-5	in.	Ø 1.24						13.3 oz			
	mm.							377 g			
ST2020-7	in.	Ø 1.49						12.7 oz			
	mm.							360 g			

STAA Series Silencers

Configurator, CAD Drawings, and On-line Store

Click Here

VP10-100H-STAA4

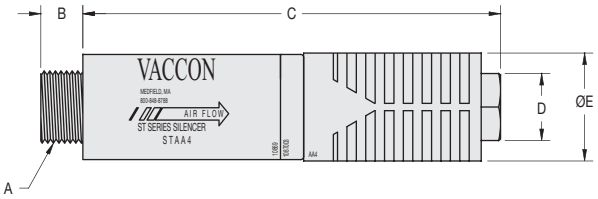
Features:

- Compact
- Lightweight
- Durable
- Ultra quiet operation
- 2 Thread sizes 1/4, 3/8 NPT

Benefits:

- Maximize performance – silences pneumatic equipment without back pressure.
- Increase productivity and operator safety – reduces irritating noise, improves working environment
- Maintain clean environment – reduces maintenance costs, increases equipment life

A hybrid silencer that offers increased noise reduction by combining an ST silencer with an AA silencer. The (closed-end) AA silencer is attached to the end of a modified ST silencer, thus removing the flow through feature of the standard ST Series silencers.



Model #		Dimensions						Weight	Construction				Noise Level
		A	B	C	D	E	F		Body	Baffle	Screen	Element	
STAA4	in.	1/4 NPSM	0.30	2.84	2.98	0.47	0.77	0.7 oz	Acetal/ Nylon	Felt/ Nylon	Nylon	Felt	58dB
	mm.		7.6	72.1	75.7	11.9	19.6	20 g					
STAA6	in.	3/8 NPSM	0.38	4.93	5.05	0.62	1.00	1.8 oz	Aluminum/ Nylon				64dB
	mm.		9.7	125.2	128.3	15.7	25.4	51 g					

STAA Series Silencers Specifications:

Max. Operating Pressure: Not to exceed 150 PSI

Noise level: Measured 4.5 ft on the diagonal from the silencer while attached to a Vaccon pump. Noise levels will vary on Vaccon and non-Vaccon products.

Note 1: Vaccon strongly recommends the use of silencers on all vacuum pumps.

Note 2: Vaccon silencers are used on all types of pneumatic devices i.e. air-operated vacuum pumps, air motors, valves, cylinders and more.

How to Specify:

- **For Silencer only:** Order by Model #.
- **Vaccon pump/silencer combinations:** Vaccon pumps include a silencer(s) that has been sized to ensure maximum pump performance. See specific pump for silencer options.
- **Non-Vaccon pneumatic devices:** The thread size on the exhaust port of the pneumatic device determines the size of the silencer.
- Equipment and applications may vary. Consult factory for proper silencer selection.

FA-51 Series Silencers

Configurator, CAD Drawings, and On-line Store

Click Here

RF-51 – replacement element for all FA-51 silencers

JS-350-FA-51-1/2

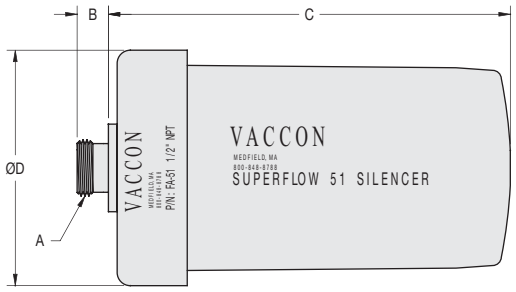
Features:

- Closed end
- 3 Thread sizes 1/4, 3/8, 1/2
- Replacement elements available

Benefits:

- Safe – closed end high flows won't cause potentially dangerous projectiles
- Durable – more area inside to absorb sound and debris
- Economical – lasts longer, lower cost, replacement elements available
- Reliable – no back pressure on high flow applications
- Maintain clean environment – reduces maintenance costs, increases equipment life

The FA-51 Series silencers offer remarkable noise reduction for high volume exhaust applications without causing back pressure. These silencers are ideal for quieting large air valves that must exhaust quickly to maintain high cycle rates. Vaccon uses the FA-51 silencers on all high flow venturi vacuum pumps where even a small amount of back pressure would decrease performance.



Model #		Dimensions				Weight	Construction				Noise Level
		A	B	C	D		Body	Baffle	Screen	Element	
FA-51-1/4	in.	1/4 NPS M	0.30	5.74 [145.8]	3.36 [85.3]	12.7 oz [357 g]	Steel	Foam	Steel	Paper	72dB
	mm.		7.6								
FA-51-3/8	in.	3/8 NPS M	0.44								
	mm.		11.2								
FA-51-1/2	in.	1/2 NPS M	0.44								
	mm.		11.2								
RF-51	in.	N/A	N/A	4.76	3.03	6.2 oz					
	mm.		N/A	120.9	77.0	176 g					

FA-51 Series Silencers Operating Specifications:

Max. Operating Pressure: Not to exceed 150 PSI

Noise level: Measured 4.5 ft on the diagonal from the silencer while attached to a Vaccon pump. Noise levels will vary on Vaccon and non-Vaccon products.

Note 1: Vaccon strongly recommends the use of silencers on all vacuum pumps.

Note 2: Vaccon silencers are used on all types of pneumatic devices i.e. air-operated vacuum pumps, air motors, valves, cylinders and more.

How to Specify:

- **For Silencer only:** Order by Model #.
- **Vaccon pump/silencer combinations:** Vaccon pumps include a silencer(s) that has been sized to ensure maximum pump performance. See specific pump for silencer options.
- **Non-Vaccon pneumatic devices:** The thread size (1/4, 3/8, 1/2) on the exhaust port of the pneumatic device determines the size of the silencer i.e. FA-51-**1/4**
- **P/N: RF-51 - Replacement Element:** Fits all FA-51 models
- Equipment and applications may vary. Consult factory for proper silencer selection.

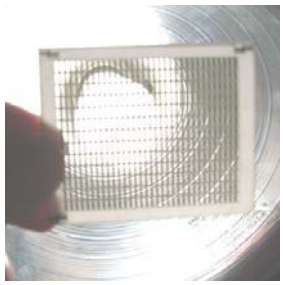
Vacuum Cups

The photographs below were taken at Vaccon's in-house test facility using customer supplied samples. With our in-house photo studio, we can email digital photo's and/or short videos of the product in action with the properly selected vacuum cup and pump.

Depending on your application, sizing a vacuum cup and pump may require some trial and error that's why Vaccon offers a 30 Day Test & Evaluation program.

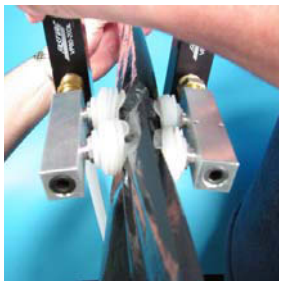
If you don't have the time or resources to test products yourself, we recommend that you send us a sample of the product and we will size the cup and/or pump for you.

*Remember, **we are experts in vacuum applications and engineering**, only amateurs in photography.* ☺



Left: CDF acts as a vacuum cup – its high flow will draw ceramic plate up one at a time. Right: Light behind the plate shines through to show the open weave – minimal surface area.

Received customer samples at 8 am, emailed photo of VP10 pump with flat cleated cups handling pliable plastic strips by 9 am – packaging application.



▲ *Bag Opening Sequence: Two VP80 pumps w/multi-bellows cups. Bag closed.*

▲ *Both sides of bag open*

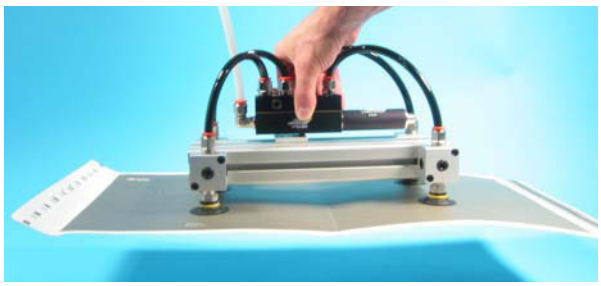
◀ *Close up of bag being opened (left).*

VP80 pump with bellow cup – pick and place application for plastic bag of blood test tubes.

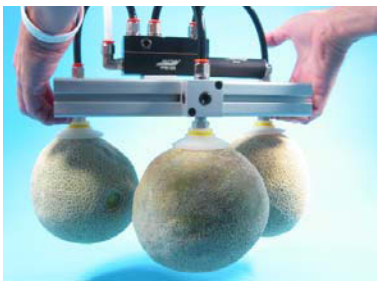
VDF pumps with flat cleated cups handle 42 lb graphite spacer for nuclear industry.

Photos below include our New End-of-Arm Tooling Products:

VP80 pump with manifold blocks & multi-bellows cups – palletizing application.



VP80 multi-port pump with manifold blocks & flat cleated cups – pick and place for paper folder folding application.



VP80 Multi-port pump with manifold blocks and bellows cups – pick and place melons for fruit packing application.

Vacuum Cup Selection Guide

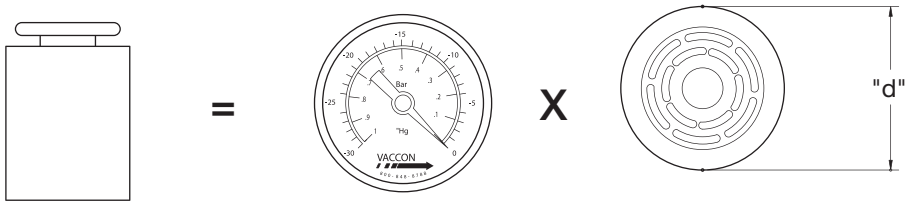
As is true in most vacuum applications, there is more than one correct answer. In order to successfully find the best cup(s) and pumps for a specific task, it is helpful to review the guidelines below.

Vacuum Cup Sizing

Choose the cup size, quantity, material and style based on the size of the object being handled, its weight, orientation, surface temperature, conditions and space available to mount the cups.

I. Determine the cup size by using the "Vacuum Cup Holding Force Calculation:"

FORCE = **PRESSURE** x **AREA**



OBJECT WEIGHT
SAFETY FACTOR * Lbs (Kg)

CONVERT "Hg TO PSI,
DIVIDE BY 2
(2Hg" = 1 PSI)
PSI (Kpa)

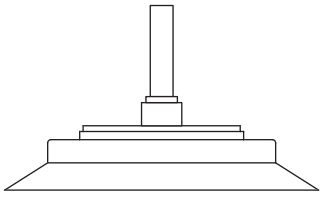
AREA = pi * $d^2/4$
pi = 3.14
in^2 (cm^2)

Force = Pressure x Area

F = the weight of the objects in lbs(kg) multiplied by the safety factor, see below.
P = the expected vacuum level in PSI (Kpa) (2Hg" = 1 PSI)
A = the area of the vacuum cup measured by in^2 [cm^2]

Safety Factors:

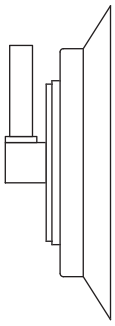
Always include safety factors when calculating lifting capabilities.



Safety Factor=2

Horizontal Lift = 2

Safety factor of 2 is recommended when cup face is in horizontal position.



Safety Factor=4

Vertical Lift = 4

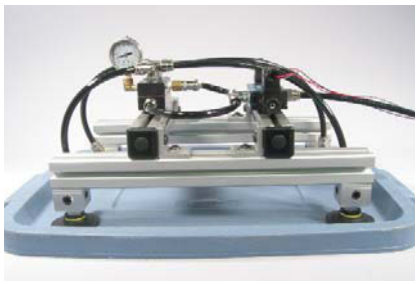
Safety factor of 4 is recommended when cup face is in a vertical position.

II. Determine Type of Material to be handled: Non-Porous, Porous, Flexible/Non-Porous

Materials being handled in pick and place applications can be grouped into 3 categories – non-porous, porous and flexible. It is important to determine what type of material you are working with in order to determine the cup type, and the fitting choices. Vaccon offers a variety of cup styles – including bellows, multi-bellows, round, oval, flat (with and without cleats), cups with removable fittings and cups with permanent fittings.

Non-Porous Materials: steel, glass, laminated chipboard, rigid plastic, semiconductors, etc.

VP20 pump with bellows cup picks up diamond tread plates – stacking application.

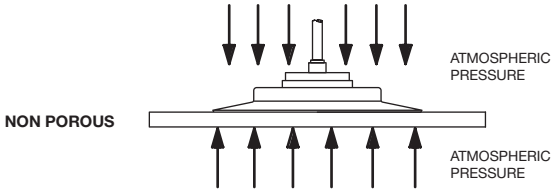


Vaccon EOAT with Multi-port pumps, manifold blocks and flat cleated cups – pick and place plastic lids for packaging application.

VP10 with bellows cups – pick and place deodorant packages for packing application.

Handling non-porous materials is the easiest application for choosing a vacuum cup and vacuum pump because there is no vacuum flow (leakage). The cup seals to the surface of the object enabling the pump to reach its maximum vacuum level.

Typically, flat cleated cups are used for non-porous applications because the rigid, low profile design resists peeling away. In horizontal applications, where there is a large array of cups, bellows cups may be an option as they offer the pliability needed to ensure that all cups make contact with the object(s) being handled.



Example: Holding Force Calculation for Non-Porous Materials

Application: lift a 100 lb steel plate, 1/8" thick, measuring 4' x 4' from a horizontal stack and place into a press

Vaccon recommends an "H" series pump when handling non-porous materials. All "H" series pumps generate 14PSI [28"Hg].

$$F = P * A$$

Force = 200 lbs (weight x safety factor/horizontal lift or 100 lbs x 2)
Pressure = 14 PSI (convert 28"Hg to PSI by dividing by 2)

If **F** (200lbs) = **P** (14PSI) * **A** (Solve for **A**)

A = 200/14 which is 14.3 in^2. – "**A**" represents the total area of the cup or all the cups combined to lift this load horizontally

Determine the Number of Cups Needed to Determine the Diameter of each Cup

Whereas the metal is only 1/8" thick, it will tend to droop. Vaccon recommends using 2 rows of 3 cups each for a total of 6 cups.

Therefore, 14.3 in^2 divided by 6 cups = 2.38 in^2 is the area per cup

Solve for the diameter (**d**) using the equation: **A** = pi * d^2 / 4
d^2 = 4 x 2.38 / pi or d^2 = 3.03 in^2
d = sq. root of 3.03 or 1.74 in

Solution: Choose a flat cup with cleats with a diameter of 1.75" or greater. With plenty of space on the steel plate to position cups, choosing a larger cup will add to the holding force and take into account any acceleration or deceleration loads during transfer.

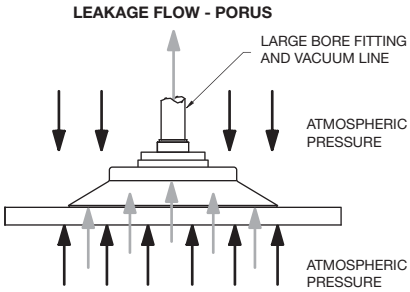
Porous Materials: corrugated, woven materials, or objects with extremely rough or uneven surfaces

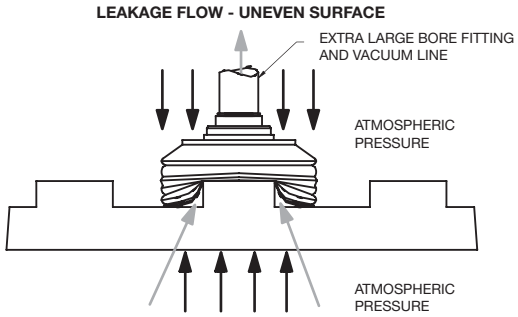
VDF pump w/flat cleated cup – picks up plywood with knots– palletizing application.

VP80 pump with manifold blocks and bellows cups picks up corrugated board for packaging application.

Two CDF pumps handle cheesecloth fabric bag – bag opening and closing application.

When handling porous materials, it is important that the flow path between the object and the vacuum pump is as large as necessary to allow the pump to draw away the air that leaks through the surface or from gaps between the cup and the surface. Pay close attention to the bore size of the fitting in the cup, as well as the size of the vacuum lines. To confirm vacuum lines are sized properly, see page 3 or the Operating and Installation Instructions section for each pump.





When calculating the holding force for porous materials, the vacuum level that will be achieved is not normally known because the leak rate of the material is unknown. To move forward and determine the diameter of the vacuum cups, assume that system will reach a vacuum level of 8PSI [16"Hg].

Vaccon recommends the "M" series vacuum pumps to maximize flow and minimize compressed air usage when handling porous materials. To ensure that the vacuum level of 8PSI [16"Hg] is achieved, contact Vaccon Tech Support for a pump recommendation.

Example: Holding Force Calculation for Porous Materials or Uneven Surfaces

Application: lift a 100 lb corrugated box with vacuum cups in the horizontal plane. Remember the safety factor and the equation **F = P * A**

200lbs = 8 PSI x **A** - Solve for **A** – the total vacuum cup(s) area.

A = 200/8 = 25 in^2 of combined cup area. Assume the number of cups used will be 4.

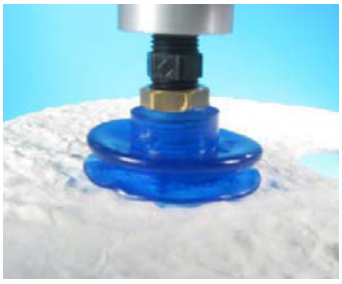
Determine the Number of Cups Needed to Determine the Diameter of each Cup

Divide the total area by the number of cups (25/4) – area of each cup is 6.25 in^2

Solve for the diameter (**d^2**) using the equation: **A** = pi * $d^2/4$, 6.25 = 3.14 (d^2)/4
d = square root of 6.25 * 4/3.14 = 2.82

Solution: Choose a flat cup with cleats or bellows cups with a diameter of 3" or greater.
In this situation, Vaccon recommends a VP80-250M vacuum pump.

Flexible Materials: plastic films, baked goods, IV bags, paper bags – things that wrinkle



Close up of a CDF 200 and VC 32C1-F cup picking up a donut textured surface

CDF 500H-75 and VC 129 oval bellows cup picking up 1000ml of saline solution in plastic bag

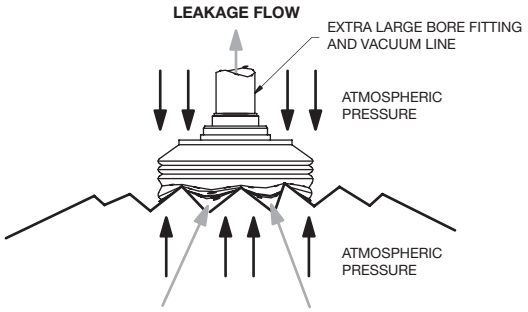
CDF 750 and VCUH cup picking up single layer cake

When handling flexible packaging materials, it is critical that the cup fitting and the vacuum line have a very large bore. Flexible materials wrinkle, causing large leak paths. The cup and the vacuum pump must be sized to accommodate that leak rate. The bore of the fitting must be close to a 1:2 ratio to the diameter of the cup.

Typically, handling flexible materials does not involve heavy weights. Calculating cup holding force is not required.

Choose a cup with a very thin flexible lip to ensure the cup conforms to the wrinkled material. Multi-bellows cups work well in these applications because of their flexibility.

The interaction between the vacuum cup and the flexible material is critical. Because the leakage flow rates are so high, it is necessary to use our CDF Series of high flow (air amplifier) vacuum pumps. With so many variables affecting performance, Vaccon strongly suggests that a sample of the material be sent to our in-house test facility for a pump and cup recommendation.



Vacuum Cup Material Specifications:

Cups are available in various durometers, colors and materials. If you do not see what you are looking for, please consult factory. Below is a general description of the various materials available and their characteristics.

Material	Working Temperature	Wear Resistance	Oil resistance	Durometer	Application
*Vinyl	+32°F to +125°F [0°C to +52°C]	Excellent	Fair	A20-A75 Range	general purpose material for most applications
Oil Resistant Vinyl	+32°F to +125°F [0°C to +52°C]	Good	Excellent	A40-A60 Range	excellent for oil resistant applications
Polyurethane	+32°F to +150°F [0°C to +66°C]	Good	Good	A20-A70 Range	good for chemical resistance and glass handling
Chloroprene	-40°F to +230°F [-40°C to +110°C]	Excellent	Good	A50-A60 Range	general purpose material with good oil resistance and low temperature performance
Nitrile	+32°F to +194°F [0°C to +90°C]	Good	Good	A50-A60 Range	general purpose material with good oil and abrasion resistance
Silicone-Grey	-50°F to +392°F [-46°C to +200°C]	Good	Good	A30-A60 Range	good for applications involving high temperatures, food or non-marking situations
Silicone-Translucent	-92°F to +392°F [-69°C to +200°C]	Good	Good	A30-A60 Range	good for applications involving high temperatures, food or non-marking situations

*Standard durometer for vinyl cups is A50 ±5 points — may vary with color. Other Materials Available - please consult factory: FDA Vinyl, Anti-Static Vinyl, FDA Silicone.

Vacuum Cup Terms and Definitions:

Bellows: The fold or collapsible area that allows the cup to compress like an accordion
Convolution: The folded area of a bellows cup that makes up 1 external "V"
Cleats: Bottom protrusions used for maintaining a larger vacuum area
Durometer: Method by which the hardness of a material is gauged
Insert/Fitting: Metal piece bonded or inserted into the material to allow fastening by threads or bolts
Vacuum Cup: Cup that requires the use of an external vacuum source to adhere to a surface
Vacuum Level: The magnitude of suction created by a vacuum pump typically measured in inches of mercury "Hg or [mbar]
Vacuum Flow: The volume of free air induced by the vacuum pump per unit of time, typically measured in SCFM
Porosity: Ability of air to pass through a material
Standard Atmospheric Pressure Measured at Sea Level: 1 ATM = 14.7 psi = 29.92"Hg = 760 mmHg = 1 Bar

Facts to Remember:
50 mmHg = 1 PSI
1mmHg = 1 torr (vacuum)
1"Hg = 25.4 mmHg
2"Hg = 1 PSI
29.92"Hg = 100 Kpa
14.7 PSI = 100 Kpa
14.7 PSI = 29.92"Hg
14.7 PSI = 760 mmHg

Conversion Chart – Vacuum vs. Pressure				
% Vacuum	"Hg	mmHg	bar	PSI
10	3	76.92	-0.1	-1.47
20	6	153.85	-0.2	-2.94
30	9	230.77	-0.3	-4.41
40	12	307.69	-0.4	-5.88
50	15	384.62	-0.5	-7.35
60	18	461.54	-0.6	-8.82
70	21	538.46	-0.7	-10.29
80	24	615.38	-0.8	-11.76
90	27	692.31	-0.9	-13.23
100	30	769.23	-1.0	-14.70

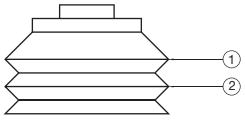
VC Style

VCC Style

VCR Style

Bellows cups have a pliable outer rim that will conform to curved or uneven surfaces while the bellows sections compensate for inconsistent stack heights. Under vacuum the accordion-style bellows cup will collapse on contact. The collapsing action simulates a short cylinder stroke lifting the product for a short distance, possibly saving the need for a separate lifting mechanism.

Bellows Styles:
Style D-1 = One Convolution
Style D-2 = Two Convolutions



This bellows has a total of 2 convolutions

Part Number		Convolutions		A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	B[1] - Collapsed Height	C	D - Thru Hole	Cleats	Standard Material	Optional Material	Weight oz [g]	Fitting Group	Cup Type[†]
VC B5		1	in.	0.18	0.03	0.50	0.45	0.12	0.06	No	V	GS or P	0	1	4
			mm	4.6	20	12.7	11.4	3.0	1.5				0		
VCC-B-020-*		1	in.	0.20	0.03	0.45	0.35	0.28	0.16	No	N or S	-	0	2	5
			mm	5.1	20	11.4	8.9	7.1	4.1				0		
VC B6		1	in.	0.25	0.05	0.45	0.39	0.14	0.06	No	V	GS or P	0	1	4
			mm	6.4	31	11.4	9.9	3.6	1.5				0		
VC B10-5		1	in.	0.41	0.13	0.65	0.48	0.31	0.16	No	V	GS or P	0.02	2	1
			mm	10.4	85	16.5	12.2	7.9	4.1				0.6		
VCC-B-043-*		1	in.	0.43	0.15	0.66	0.48	0.41	0.19	Yes	N or S	-	0.03	7	6
			mm	10.9	94	16.8	12.2	10.4	4.8				0.9		
VCR-B10P-*		1	in.	0.43	0.15	0.67	0.46	0.36	0.15	No	C or S	-	0.03	3	1
			mm	10.9	94	17.0	11.7	9.1	3.8				0.9		
VC B3		1	in.	0.51	0.20	0.56	0.28	0.31	0.15	No	V	GS or P	0.02	2	4
			mm	13.0	132	14.2	7.1	7.9	3.8				0.6		

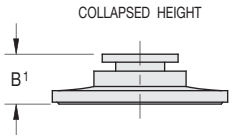
(Continued on next page)

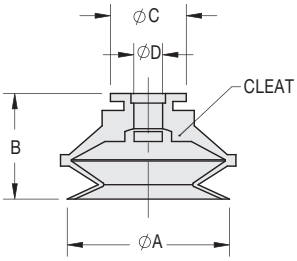
* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number.
I.E. **VCC-B-020-N** (for Nitrile material). See Chart below for material specifications.
Fittings: To order fittings, please reference the fitting groups section for the approriate part numbers. NF indicates no fitting is required.

† Cup Type number very useful when navigating the Vaccon website for CAD drawings.

The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see pages 263-267.

Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
N - Nitrile	Black	+32°F to +194°F (0°C to +90°C)
C - Chloroprene	Black	-40°F to +230°F (-40°C to +110°C)
GS - Silicone	Gray	-50°F to +392°F (-46°C to +200°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)





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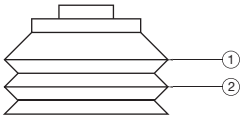
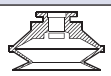
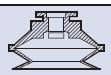
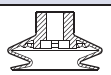
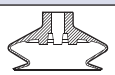
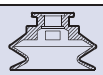
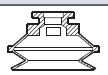
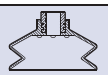
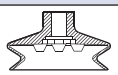


This bellows has a total of 2 convolutions

Part Number		Convolutions		A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	B' - Collapsed Height	C	D - Thru Hole	Cleats	Standard Material	Optional Material	Weight oz [g]	Fitting Group	Cup Type†
VCC-B-051-*		1	in.	0.51	0.20	0.63	0.45	0.41	0.16	Yes	N or S	-	0.05	7	6
			mm	13.0	132	16.0	11.4	10.4	4.1				1		
VC B15		1	in.	0.61	0.29	0.81	0.57	0.36	0.14	No	V	GS or P	0.05	3	1
			mm	15.5	189	20.6	14.5	9.1	3.6				1		
VCC-B-063-*		1	in.	0.63	0.31	0.75	0.48	0.41	0.19	Yes	N or S	-	0.05	7	6
			mm	16.00	201	19.1	12.2	10.4	4.8				1		
VCR-B15P-*		1	in.	0.65	0.33	0.77	0.50	0.36	0.15	No	C or S	-	0.05	3	1
			mm	16.5	214	19.6	12.7	9.1	3.8				1		
VCC-B-075-*		1	in.	0.72	0.41	0.61	0.40	0.41	0.16	Yes	N or S	-	0.07	7	6
			mm	18.3	263	15.5	10.2	10.4	4.1				2		
VC B2		1	in.	0.75	0.44	0.71	0.43	0.51	0.26	No	V	GS or P	0.07	NF	4
			mm	19.1	285	18.0	10.9	13.0	6.6				2		
VC B20		1	in.	0.80	0.50	0.78	0.63	0.38	0.16	No	V	GS or P	0.07	3	4
			mm	20.3	324	19.8	16.0	9.7	4.1				2		
VCR-B20P-*		1	in.	0.85	0.57	0.79	0.38	0.56	0.22	Yes	C or S	-	0.10	4	2
			mm	21.6	366	20.1	9.7	14.2	5.6				3		
VC B20P		1	in.	0.87	0.59	0.73	0.40	0.57	0.19	Yes	V	GS or P	0.07	4	2
			mm	22.1	384	18.5	10.2	14.5	4.8				2		
VCC-B-087-*		1	in.	0.87	0.59	0.75	0.45	0.39	0.19	Yes	N or S	-	0.07	7	6
			mm	22.1	384	19.1	11.4	9.9	4.8				2		
VCC-B-094-*		1	in.	0.94	0.69	0.91	0.50	0.39	0.15	Yes	N or S	-	0.11	7	6
			mm	23.9	448	23.1	12.7	9.9	3.8				3		
VC 124		1	in.	1.02	0.82	1.45	0.97	0.64	0.34	No	V	GS or P	0.18	NF	4
			mm	25.9	527	36.8	24.6	16.3	8.6				5		

Part Number		Convolutions		A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	B¹ - Collapsed Height	C	D - Thru Hole	Cleats	Standard Material	Optional Material	Weight oz [g]	Fitting Group	Cup Type†
VC B1		1	in.	1.20	1.13	1.23	0.84	0.54	-	No	V	GS or P	0.42	1/8 NPTF	9
			mm	30.5	730	31.2	21.3	13.7	-				12		
VCR-B30P-*		1	in.	1.31	1.35	1.02	0.60	0.75	0.22	No	C or S	-	0.28	5	2
			mm	33.3	870	25.9	15.2	19.1	5.6				8		
VC B30P		1	in.	1.32	1.37	1.00	0.58	0.56	0.19	Yes	V	GS or P	0.21	5	2
			mm	33.5	883	25.4	14.7	14.2	4.8				6		
VCC-B-130-*		1	in.	1.32	1.37	1.08	0.65	0.71	0.31	Yes	N or S	-	0.25	8	6
			mm	33.5	883	27.4	16.5	18.0	7.9				7		
VCR-B40P-*		1	in.	1.69	2.24	1.10	0.64	0.79	0.30	Yes	C or S	-	0.42	5	2
			mm	42.9	1447	27.9	16.3	20.1	7.6				12		
VC B40P		1	in.	1.69	2.24	1.10	0.52	0.79	0.25	Yes	V	-	0.42	5	2
			mm	42.9	1447	27.9	13.2	19.1	7.1				12		
VCC-B-169-*		1	in.	1.69	2.24	1.10	0.70	0.71	0.31	Yes	N or S	-	0.39	8	6
			mm	42.9	1447	27.9	17.8	18.0	7.9				11		
VC 32C		1	in.	2.00	3.14	1.61	0.85	0.73	0.38	Yes	V	GS or P	0.67	NF	4
			mm	50.8	2027	40.9	21.6	18.5	9.7				19		
VC 32C-1		1	in.	2.00	3.14	1.59	0.85	0.75	0.50	Yes	V	GS or P	0.53	NF	4
			mm	50.8	2027	40.4	21.6	19.1	12.7				15		
VC 32C1-F		1	in.	2.00	3.14	1.50	0.85	1.00	-	Yes	V	GS or P	1.13	1/4 NPTF	9
			mm	50.8	2027	38.1	21.6	25.4	-				32		
VCC-B-209-*		1	in.	2.07	3.37	1.34	0.85	0.71	0.31	Yes	N or S	-	0.78	8	6
			mm	52.6	2171	34.0	21.6	18.0	7.9				22		
VC B50P		1	in.	2.10	3.46	1.38	0.75	1.04	0.41	Yes	V	GS or P	0.78	6	2
			mm	53.3	2235	35.1	19.1	26.4	10.4				22		
VCR-B50P-*		1	in.	2.10	3.46	1.43	0.75	1.04	0.41	Yes	C or S	-	0.88	6	2
			mm	53.3	2235	36.3	19.1	26.4	10.4				25		
VC 32B		1	in.	2.78	6.07	1.82	0.79	1.00	-	Yes	V	GS or P	1.66	1/4 NPTF	9
			mm	70.6	3916	46.2	20.1	25.4	-				47		
VCC-B-307-*		1	in.	3.07	7.40	1.80	1.25	0.98	0.47	Yes	N or S	-	2.15	9	6
			mm	78.0	4776	45.7	31.8	24.9	11.9				61		

*** How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number.
I.E. **VCC-B-020-N** (for Nitrile material). See Chart below for material specifications.
Fittings: To order fittings, please reference the fitting groups section for the approriate part numbers. NF indicates no fitting is required.

† Cup Type number very useful when navigating the Vaccon website for CAD drawings.

The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see pages 265-268.

Configurator, CAD Drawings, and On-line Store

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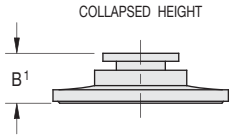
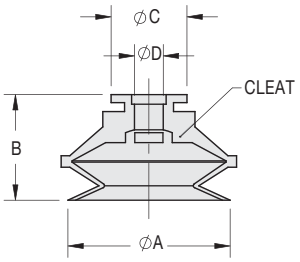
Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
N - Nitrile	Black	+32°F to +194°F (0°C to +90°C)
C - Chloroprene	Black	-40°F to +230°F (-40°C to +110°C)
GS - Silicone	Gray	-50°F to +392°F (-46°C to +200°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)





Vacuum Cups

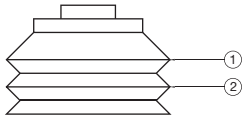
VC Style

VCC Style

VCR Style

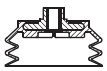
Bellows cups have a pliable outer rim that will conform to curved or uneven surfaces while the bellows sections compensate for inconsistent stack heights. Under vacuum the accordion-style bellows cup will collapse on contact. The collapsing action simulates a short cylinder stroke lifting the product for a short distance, possibly saving the need for a separate lifting mechanism.

Bellows Styles:
Style D-1 = One Convolution
Style D-2 = Two Convolutions



This bellows has a total of 2 convolutions

Part Number		Convolutions		A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	B' - Collapsed Height	C	D - Thru Hole	Cleats	Standard Material	Optional Material	Weight oz [g]	Fitting Group	Cup Type†
VCC-B-021-*		2	in.	0.21	0.03	0.53	0.47	0.27	0.16	No	N or S	-	0	3	7
			mm	5.3	22	13.5	11.9	6.9	4.1				0		
VCC-B-028-*		2	in.	0.26	0.05	0.55	0.42	0.37	0.19	No	N or S	-	0	7	7
			mm	6.6	34	14.0	10.7	9.4	4.8				0		
VCC-B-035-*		2	in.	0.35	0.10	0.59	0.46	0.36	0.19	No	N or S	-	0	7	7
			mm	8.9	62	15.0	11.7	9.1	4.8				0		
VC B10-2		2	in.	0.38	0.11	0.75	0.48	0.19	0.06	No	V	GS or P	0	1	4
			mm	9.7	73	19.1	12.2	4.8	1.5				0		
VCC-B-055-*		2	in.	0.56	0.25	0.91	0.62	0.40	0.19	No	N or S	-	0.07	7	8
			mm	14.2	159	23.1	15.7	10.2	4.8				2		
VCC-B-069-*		2	in.	0.69	0.38	0.91	0.50	0.40	0.19	No	N or S	-	0.07	7	8
			mm	17.5	248	23.1	12.7	10.2	4.8				2		
VC 33A5		3	in.	0.75	0.44	1.00	0.37	0.67	0.44	No	V	GS or P	0.11	NF	4
			mm	19.1	285	25.4	9.4	17.0	11.2				3		
VCR-BL20P-*		4	in.	0.79	0.49	0.90	0.38	0.57	0.20	No	C or S	-	0.11	4	3
			mm	20.1	316	22.9	9.7	14.5	5.1				3		
VCC-B-079-*		2	in.	0.79	0.49	0.91	0.50	0.40	0.19	No	N or S	-	0.07	7	8
			mm	20.1	316	23.1	12.7	10.2	4.8				2		
VC 33A3		2	in.	0.89	0.62	1.02	0.55	0.67	0.43	No	V	GS or P	0.14	NF	4
			mm	22.6	401	25.9	14.0	17.0	10.9				4		
VCC-B-098-*		2	in.	0.98	0.72	1.34	0.69	0.40	0.16	No	N or S	-	0.14	7	8
			mm	24.9	467	34.0	17.5	10.2	4.1				4		
VCR-BL30P-*		4	in.	1.18	1.09	1.26	0.55	0.79	0.25	No	C or S	-	0.21	5	3
			mm	30.0	706	32.0	14.0	20.1	6.4				6		

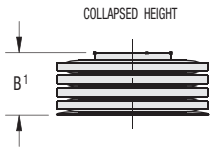
Part Number		Convolutions		A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	B¹ - Collapsed Height	C	D - Thru Hole	Cleats	Standard Material	Optional Material	Weight oz [g]	Fitting Group	Cup Type†
VC 33A2		2	in.	1.25	1.23	1.43	0.87	0.68	-	No	V	GS or P	0.60	1/4 NPTF	9
			mm	31.8	792	36.3	22.1	17.3	-				17		
VCC-B-126-*		2	in.	1.28	1.29	1.48	0.90	0.73	0.31	No	N or S	-	0.35	8	8
			mm	32.5	830	37.6	22.9	18.5	7.9				10		
VC 33A		3	in.	1.42	1.58	2.08	1.14	0.68	-	No	V	GS or P	0.71	1/4 NPTF	9
			mm	36.1	1022	52.8	29.0	17.3	-				20		
VCR-BL40P-*		4	in.	1.58	1.96	1.60	0.65	0.79	0.25	No	C or S	-	0.42	5	3
			mm	40.1	1265	40.6	16.5	20.1	6.4				12		
VCC-B-165-*		2	in.	1.65	2.14	1.81	0.98	0.70	0.31	No	N or S	-	0.63	8	8
			mm	41.9	1379	46.0	24.9	17.8	7.9				18		
VCR-BL50P-*		4	in.	1.98	3.08	2.04	0.9	1.07	0.41	No	C or S	-	0.85	6	3
			mm	50.3	1986	51.8	22.9	27.2	10.4				24		
VC 32D		2	in.	2.00	3.14	1.65	0.75	0.75	-	No	V	GS or P	1.02	1/4 NPTF	9
			mm	50.8	2027	41.9	19.1	19.1	-				29		
VCC-B-244-*		2	in.	2.44	4.68	2.17	0.81	0.70	0.31	No	N or S	-	1.34	8	8
			mm	62.0	3017	55.1	20.6	17.8	7.9				38		
VC 130		4	in.	3.31	8.60	2.75	1.14	2.42	-	Yes	V	GS or P	4.76	3/4 NPTF	10
			mm	84.1	5551	69.9	29.0	61.5	-				135		
VCC-B-346-*		2	in.	3.46	9.40	3.44	1.81	0.97	0.47	Yes	N or S	-	5.86	9	8
			mm	87.9	6066	87.4	46.0	24.6	11.9				166		
VC 104.5		2	in.	4.50	15.90	2.50	1.50	3.50	-	Yes	V	GS or P	7.4	3/8 NPTF	9
			mm	114.3	10261	63.5	38.1	88.9	-				209		

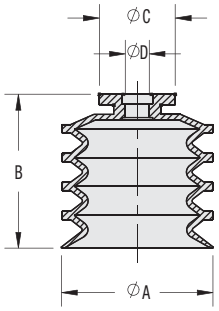
* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. **VCC-B-021-N** (for Nitrile material). See Chart below for material specifications.
Fittings: To order fittings, please reference the fitting groups section for the approriate part numbers. NF indicates no fitting is required.

† Cup Type number very useful when navigating the Vaccon website for CAD drawings.

The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see pages 265-268.

Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
N - Nitrile	Black	+32°F to +194°F (0°C to +90°C)
C - Chloroprene	Black	-40°F to +230°F (-40°C to +110°C)
GS - Silicone	Gray	-50°F to +392°F (-46°C to +200°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)





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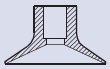
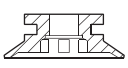
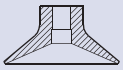
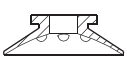
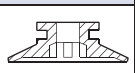
VC Style

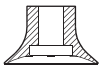
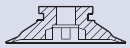
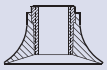
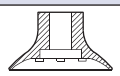
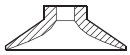
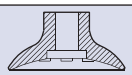
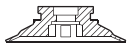
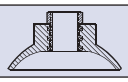
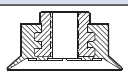
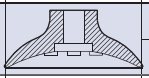
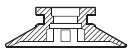
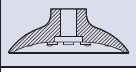
VCC Style

VCR Style

Flat cups without cleats are flexible and work well in applications that do not require lifting heavy loads.

Flat cups with cleats are strong with a rigid, low profile that will lift heavy loads. The low profile allows heavy loads to be lifted vertically without the cup "peeling" away from the product surface or deforming the object being lifted. These cups perform well when gripping smooth, flat, heavy objects such as steel, glass (television picture tubes) and coated corrugated.

Part Number			A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	B[1] - Collapsed Height	C	D - Thru Hole	Cleats	Standard Material	Optional Material	Weight oz [g]	Fitting Group	Cup Type[†]
VCC-F-020-*		in.	0.20	0.03	0.36	0.35	0.32	0.16	No	N or S	-	0	7	9
		mm	5.1	20	9.1	8.9	8.1	4.1				0		
VC 1		in	0.22	0.04	0.21	0.19	0.22	0.06	No	V	GS or P	0	NF	3
		mm	5.6	25	5.3	4.8	5.6	1.5				0		
VC 165A		in	0.37	0.11	0.25	0.22	0.37	0.21	No	V	GS or P	0	NF	4
		mm	9.4	69	6.4	5.6	9.4	5.3				0		
VCC-F-039-*		in	0.39	0.12	0.43	0.39	0.37	0.20	No	N or S	-	0	7	9
		mm	9.9	77	10.9	9.9	9.4	5.1				0		
VC 25		in	0.59	0.27	0.53	0.53	0.46	0.25	No	V	GS or P	0.04	NF	4
		mm	15.0	176	13.5	13.5	11.7	6.4				1		
VCC-F-059-*		in	0.59	0.27	0.44	0.36	0.36	0.20	No	N or S	-	0.04	7	10
		mm	15.0	176	11.2	9.1	9.1	5.1				1		
VCR-F15P-*		in	0.66	0.34	0.47	0.42	0.36	0.15	Yes	C or S	-	0.04	3	1
		mm	16.8	221	11.9	10.7	9.1	3.8				1		
VCC-F-079-*		in.	0.79	0.49	0.45	0.35	0.33	0.20	No	N or S	-	0.04	7	10
		mm	20.1	316	11.4	8.9	8.4	5.1				1		
VCR-F20P-*		in.	0.87	0.59	0.32	0.27	0.57	0.21	Yes	C or S	-	0.07	4	2
		mm	22.1	384	8.1	6.9	14.5	5.3				2		
VCC-F-100-*		in.	1.00	0.79	0.50	0.35	0.38	0.20	No	N or S	-	0.07	7	10
		mm	25.4	507	12.7	8.9	9.7	5.1				2		
VC 36 B		in.	1.02	0.82	0.34	0.25	0.56	0.24	Yes	V	GS or P	0.04	NF	3
		mm	25.9	527	8.6	6.4	14.2	6.1				1		
VC 10		in.	1.04	0.85	0.90	0.70	0.62	-	No	V	GS or P	0.32	1/8 NPTF	5
		mm	26.4	548	22.9	17.8	15.7	-				9		
VCR-F25P-*		in.	1.10	0.95	0.36	0.33	0.57	0.21	Yes	C or S	-	0.07	4	2
		mm	27.9	613	9.1	8.4	14.5	5.3				2		
VC 11		in.	1.19	1.11	0.88	0.75	0.75	-	No	V	GS or P	0.49	1/4 NPTF	5
		mm	30.2	718	22.4	19.1	19.1	-				14		

Part Number			A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	B[1] - Collapsed Height	C	D - Thru Hole	Cleats	Standard Material	Optional Material	Weight oz [g]	Fitting Group	Cup Type†
VCC-F-120-*		in.	1.20	1.13	0.74	0.63	0.62	0.31	Yes	N or S	-	0.14	8	11
		mm	30.5	730	18.8	16.0	15.7	7.9				4		
VCR-F30P-*		in.	1.27	1.27	0.39	0.35	0.57	0.20	Yes	C or S	-	0.11	4	2
		mm	32.3	817	9.9	8.9	14.5	5.1				3		
VC 2EA		in.	1.34	1.41	0.90	0.83	0.62	-	Yes	V	GS or P	0.21	1/8 NPTM	5
		mm	34.0	910	22.9	21.1	15.7	-				6		
VC 12		in.	1.40	1.54	0.82	0.75	0.75	-	No	V	GS or P	0.56	1/4 NPTF	5
		mm	35.6	993	20.8	19.1	19.1	-				16		
VCC-F-142-*		in.	1.42	1.58	0.79	0.63	0.62	0.31	Yes	N or S	-	0.21	8	11
		mm	36.1	1022	20.1	16.0	15.7	7.9				6		
VC 37A		in	1.51	1.79	1.19	0.92	0.89	-	No	V	GS or P	0.67	1/4 NPTF	5
		mm	38.4	1115	30.2	23.4	22.6	-				19		
VC 8		in	1.51	1.79	0.56	0.43	0.55	0.23	No	V	GS or P	0.21	NF	4
		mm	38.4	1155	14.2	10.9	14.0	5.8				6		
VCC-F-160-*		in	1.60	2.01	0.79	0.64	0.63	0.31	Yes	N or S	-	0.21	8	11
		mm	40.6	1297	20.1	16.3	16.0	7.9				6		
VCR-F40P-*		in	1.65	2.14	0.48	0.39	0.76	0.26	Yes	C or S	-	0.21	5	2
		mm	41.9	1379	12.2	9.9	19.3	6.6				6		
VC 168		in	2.00	3.14	1.02	0.68	1.10	-	No	V	GS or P	0.99	1/4 NPTF	5
		mm	50.8	2027	25.9	17.3	27.9	-				28		
VC 59		in	2.00	3.14	1.00	0.82	1.53	-	Yes	V	GS or P	2.08	1/4 NPTF	5
		mm	50.8	2027	25.4	20.8	38.9	-				59		
VCC-F-205-*		in.	2.05	3.30	0.85	0.67	0.70	0.31	Yes	N or S	-	0.42	8	11
		mm	52.1	2129	21.6	17.0	17.8	7.9				12		
VCR-F50P-*		in.	2.10	3.46	0.69	0.62	1.04	0.43	Yes	C or S	-	0.46	6	2
		mm	53.3	2235	17.5	15.7	26.4	10.9				13		
VCC-F-236-*		in.	2.36	4.37	0.87	0.67	0.70	0.31	Yes	N or S	-	0.56	8	11
		mm	59.9	2822	22.1	17.0	17.8	7.9				16		
VC 49		in.	2.44	4.68	2.20	1.99	1.04	-	Yes	V	GS or P	1.52	1/4 NPTF	5
		mm	62.0	3017	55.9	50.5	26.4	-				43		

(Continued on next page)

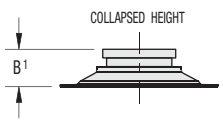
* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. **VCC-F-374-N** (for Nitrile material). See Chart below for material specifications.

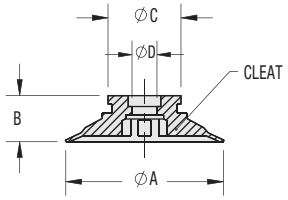
Fittings: To order fittings, please reference the fitting groups section for the approriate part numbers. NF indicates no fitting is required.

† Cup Type number very useful when navigating the Vaccon website for CAD drawings.

The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see pages 264-267.

Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
N - Nitrile	Black	+32°F to +194°F (0°C to +90°C)
GS - Silicone	Gray	-50°F to +392°F (-46°C to +200°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)





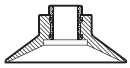
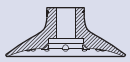
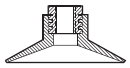
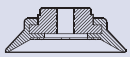
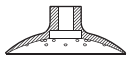
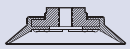
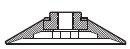
VC Style

VCC Style

VCR Style

Flat cups without cleats are flexible and work well in applications that do not require lifting heavy loads.

Flat cups with cleats are strong with a rigid, low profile that will lift heavy loads. The low profile allows heavy loads to be lifted vertically without the cup "peeling" away from the product surface or deforming the object being lifted. These cups perform well when gripping smooth, flat, heavy objects such as steel, glass (television picture tubes) and coated corrugated.

Part Number			A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	B¹ - Collapsed Height	C	D - Thru Hole	Cleats	Standard Material	Optional Material	Weight oz [g]	Fitting Group	Cup Type†
VC 106		in.	2.50	4.91	1.18	0.80	1.09	-	No	V	GS or P	1.02	1/4 NPTF	5
		mm	63.5	3167	30.0	20.3	27.7	-				29		
VCC-F-295-*		in.	2.95	6.83	1.20	1.08	0.92	0.47	Yes	N or S	-	1.20	9	11
		mm	74.9	4409	30.5	27.4	23.4	11.9				34		
VC 30		in.	3.06	7.35	1.45	1.10	1.15	-	No	V	GS or P	2.61	1/4 NPTF	5
		mm	77.7	4744	36.8	27.9	29.2	-				74		
VC 27A		in.	3.25	8.30	1.20	0.95	2.23	-	Yes	V	GS or P	3.28	1/4 NPTF	6
		mm	82.6	5352	30.5	24.1	56.6	-				93		
VCC-F-374-*		in.	3.74	10.99	1.47	1.08	0.97	0.47	Yes	N or S	-	1.83	9	11
		mm	95.0	7087	37.3	27.4	24.6	11.9				52		
VC 27		in.	4.25	14.19	1.30	0.85	2.73	-	Yes	V	GS or P	4.03	1/4 NPTF	6
		mm	108.0	9152	33.0	21.6	69.3	-				122		
VC 63		in.	4.75	17.72	1.25	0.90	1.67	-	Yes	V	GS or P	4.09	3/8 NPTF	6
		mm	120.7	11432	31.8	22.9	42.4	-				116		
VC 34		in.	6.25	30.68	1.37	0.85	5.00	-	Yes	V	GS or P	16.0	3/8 NPTF	6
		mm	158.8	19793	34.8	21.6	127.0	-				454		

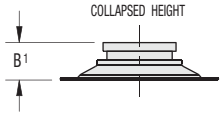
* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. **VCC-F-374-N** (for Nitrile material). See Chart below for material specifications.

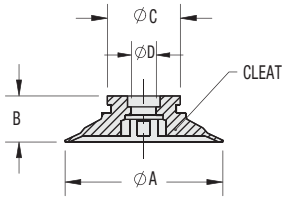
Fittings: To order fittings, please reference the fitting groups section for the approriate part numbers. NF indicates no fitting is required.

† Cup Type number very useful when navigating the Vaccon website for CAD drawings.

The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see page 268.

Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
N - Nitrile	Black	+32°F to +194°F (0°C to +90°C)
GS - Silicone	Gray	-50°F to +392°F (-46°C to +200°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)



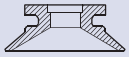
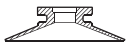
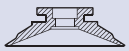
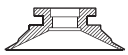


Universal Cups

Universal cups can handle flat or slightly curved surfaces.

Configurator, CAD Drawings, and On-line Store

Click Here

Part Number			A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	B[1] - Collapsed Height	C	D - Thru Hole	Cleats	Standard Material	Weight oz [g]	Fitting Group	Cup Type†
VCR-U4P-*		in.	0.20	0.03	0.27	0.26	0.18	0.07	No	C or S	0	1	1
		mm	5.1	20	6.9	6.6	4.6	1.8			0.1		
VCR-U6P-*		in.	0.28	0.06	0.27	0.26	0.20	0.08	No	C or S	0	1	1
		mm	7.1	40	6.9	6.6	5.1	2.0			0.1		
VCR-U8P-*		in.	0.37	0.11	0.27	0.24	0.20	0.08	No	C or S	0	1	1
		mm	9.4	69	6.9	6.1	5.1	2.0			0.1		
VCR-U10P-*		in.	0.44	0.15	0.43	0.40	0.35	0.15	No	C or S	0.02	3	1
		mm	11.2	98	10.9	10.2	8.9	3.8			0.7		
VCR-U15P-*		in.	0.65	0.33	0.45	0.37	0.35	0.15	No	C or S	0.03	3	1
		mm	16.5	214	11.4	9.4	8.9	3.8			0.8		
VCR-U20P-*		in.	0.85	0.57	0.33	0.21	0.57	0.21	No	C or S	0.04	4	2
		mm	21.6	366	8.4	5.3	14.5	5.3			0		
VCR-U30P-*		in.	1.25	1.23	0.38	0.21	0.57	0.21	No	C or S	0.07	4	2
		mm	31.8	792	9.7	5.3	14.5	5.3			2		
VCR-U40P-*		in.	1.65	2.14	0.53	0.33	0.77	0.25	No	C or S	0.21	5	2
		mm	41.9	1379	13.5	8.4	19.6	6.4			6		
VCR-U50P-*		in.	2.05	3.30	0.72	0.45	1.06	0.44	No	C or S	0.39	6	2
		mm	52.1	2129	18.3	11.4	26.9	11.2			11		

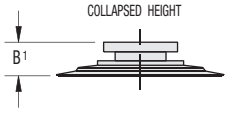
* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. **VCR-U4P-S** (for Silicone material). See Chart below for material specifications.

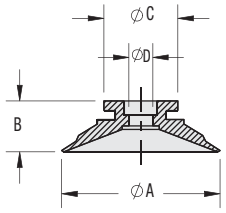
Fittings: To order fittings, please reference the fitting groups section for the approriate part numbers.

† Cup Type number very useful when navigating the Vaccon website for CAD drawings.

The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see pages 263-266.

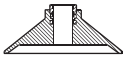
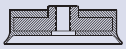
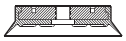
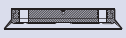
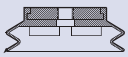
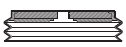
Material	Color	Temperature Range
C - Chloroprene	Black	-40°F to +230°F (-40°C to +110°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)





VC Style

Like cleated cups, oval cups have heavy load capabilities due to their rigid design and large vacuum work area. Oval cups have the largest lifting force because they provide the most surface area for a given footprint.

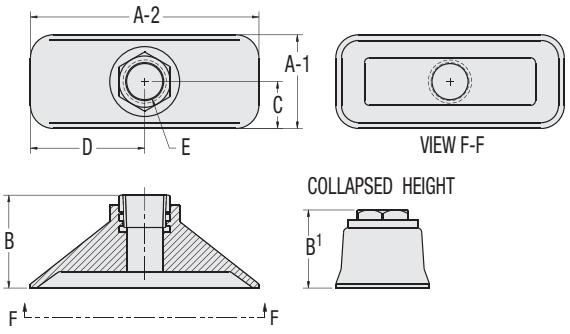
Part Number			A-1	A-2	Approx. Area sq. in. [sq.mm]	B - Height	B' - Collapsed Height	C	D	E	F	H	Cleats	Standard Material	Optional Material	Weight oz [g]	Cup Type†
VC 89		in.	1.14	2.78	5.85	1.13	0.95	0.57	1.39	1/4 NPTF	-	-	No	V	GS or P	1	1
		mm	29.0	70.6	3774	28.7	2.41	14.5	35.3							27	
VC 83		in.	1.56	4.09	3.16	1.30	1.20	0.78	2.05	1/4 NPTF	-	-	No	V	GS or P	3.2	1
		mm	39.6	103.9	2039	33.0	30.5	19.8	51.9							91	
VC 183 2X4		in.	2.00	4.00	7.14	1.00	0.70	1.00	2.00	1/4 NPTF	-	-	Yes	V	GS or P	2.7	1
		mm	50.8	101.6	4606	25.4	17.8	25.4	50.8							76	
VC 183 2X6		in.	2.00	6.00	11.14	0.98	0.75	1.00	4.00	1.00	1/4 NPTF	-	Yes	V	GS or P	4.7	1
		mm	50.8	152.4	7187	24.9	19.1	25.4	101.6	25.4						134	
VC 90 2X10		in.	2.00	10.00	19.14	0.82	0.55	1.00	6.5	1.75	1/4 NPTF	-	No	V	GS or P	4.9	1
		mm	50.8	254.0	12348	20.8	14.0	25.4	165.1	44.5						139	
VC90 3X8		in.	3.00	8.00	22.06	1.10	0.75	1.50	5.00	1.50	3/8 NPTF	-	Yes	V	GS or P	11	1
		mm	76.2	203.2	14232	27.8	19.1	38.1	127.0	38.1						312	
VC 90 3X10		in.	3.00	10.00	28.06	1.10	0.73	1.50	7.00	1.50	3/8 NPTF	-	Yes	V	GS or P	14	1
		mm	76.2	254.0	18103	27.8	18.5	38.1	177.8	38.1						397	
VC 32 3.5X5.0		in.	3.50	5.00	11.87	1.82	1.02	1.75	2.50	3/8 NPTF	-	-	Yes	V	GS or P	6.7	1
		mm	88.9	127.0	7658	46.2	25.9	44.5	63.5							190	
VC 129		in.	3.25	7.87	23.30	1.83	0.80	1.63	3.94	1/2 NPTF	-	-	Yes	V	GS or P	13.2	1
		mm	82.6	199.9	150.32	46.5	20.3	41.3	100.0							373	
VC 90 6X10		in.	6.00	10.00	58.06	1.19	0.73	2.00	6.00	2.00	6	Consult Factory	Yes	V	GS or P	24	1
		mm	152.4	254.0	37458	30.2	18.5	50.8	152.4	50.8	152.4					680	

* **How to Order:** All part numbers ending with a dash require customer to specify material type to complete part number. I.E. **VC-89-GS** (for Grey Silicone material).
See Chart below for material specifications.

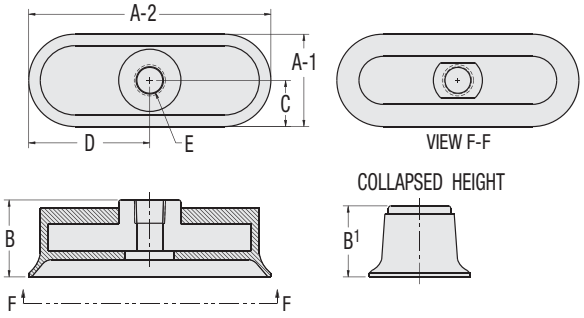
† Cup Type number very useful when navigating the Vaccon website for CAD drawings.

The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF.

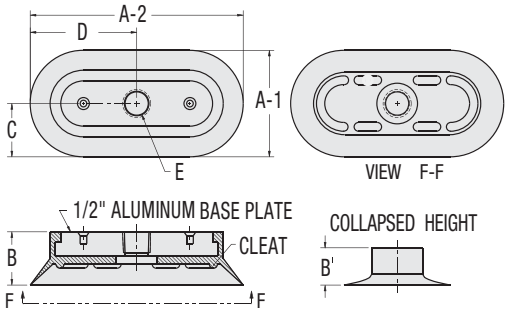
Material	Color	Temperature Range
V - Vinyl	Blue	+32°F to +125°F (0°C to +52°C)
P - Polyurethane	Green	+32°F to +150°F (0°C to +66°C)
GS - Grey Silicone	Grey	-50°F to +392°F (-46°C to +200°C)



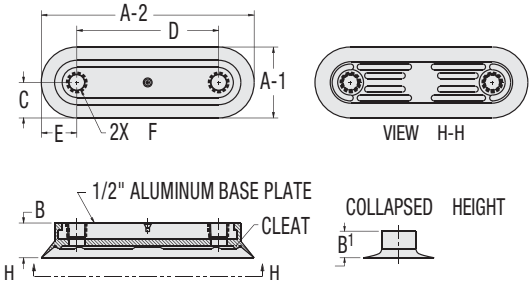
VC 89



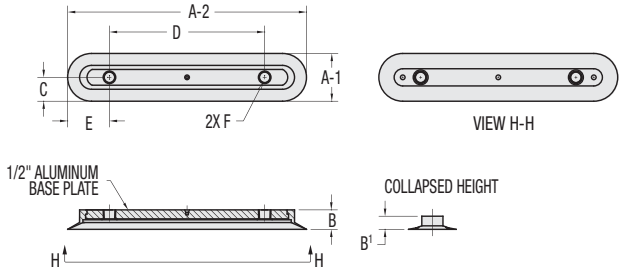
VC 83



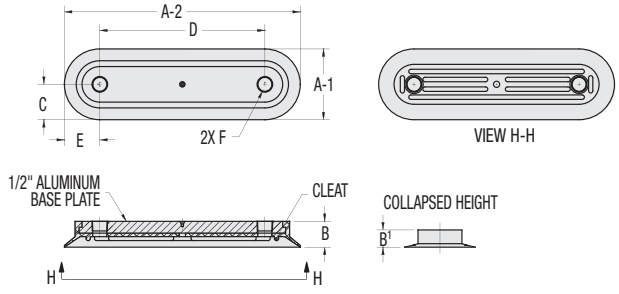
VC 183 2 x 4



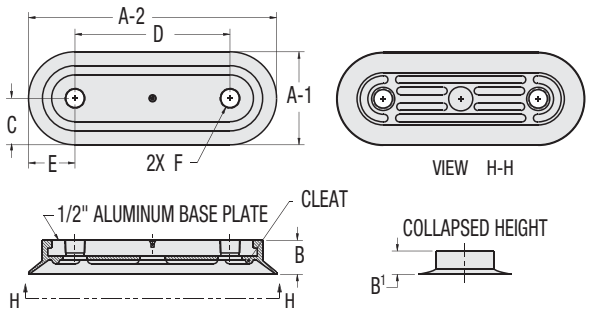
VC 183 2 x 6



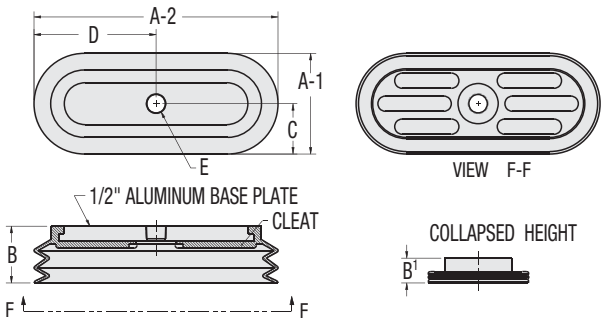
VC 90 2 x 10



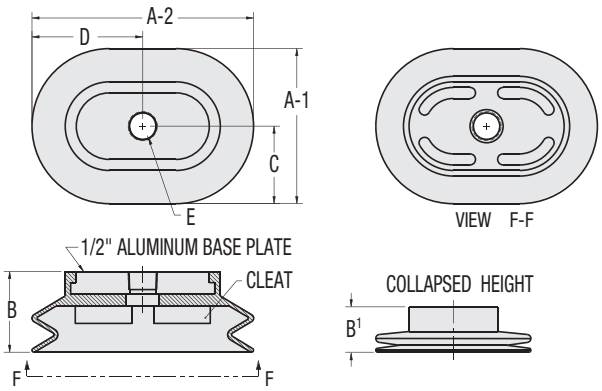
VC 90 3 x 10



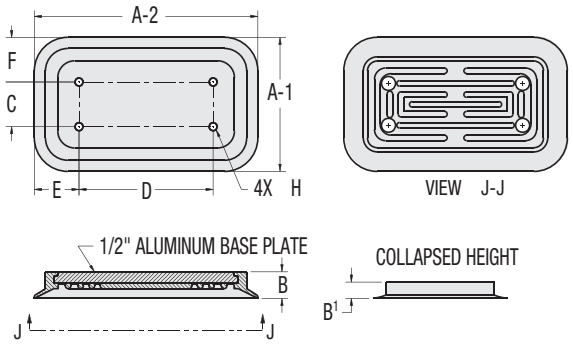
VC 90 3 x 8



VC 129



VC 32 3.5 x 5.0



VC 90 6 x 10

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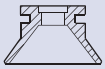
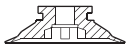
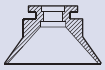
VCN Style

VCR Style

Deep cups are used for curved and irregular surfaces, not for flat surfaces. They can lift products over corners and edges. Excellent for handling golf balls etc.

Part Number			A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	B[1] - Collapsed Height	C	D - Thru Hole	Cleats	Standard Material	Weight oz [g]	Fitting Group	Cup Type†
VCR-D15P-*		in.	0.64	0.32	0.65	0.45	0.35	0.15	No	C or S	0	3	1
		mm	16.3	208	16.5	11.4	8.9	3.8			1		
VCN-152B		in.	0.75	0.44	0.56	0.39	0.49	0.22	Yes	V-Blk	0	VCF4-18M-152 VCF4-18F-152 VCF4-1032M	7
		mm	19.1	285	14.2	9.9	12.4	5.6			1		
VCN-152C		in.	0.75	0.44	0.56	0.39	0.49	0.22	Yes	V-Clr	0		7
		mm	19.1	285	14.2	9.9	12.4	5.6			1		
VCR-D20P-*		in.	0.86	0.58	0.51	0.45	0.57	0.20	No	C or S	0	4	2
		mm	21.8	375	13.0	11.4	14.5	5.1			2		
VCR-D30P-*		in.	1.25	1.23	0.77	0.45	0.57	0.20	No	C or S	0.14	4	2
		mm	31.8	792	19.6	11.4	14.5	5.1			4		
VCR-D50P-*		in.	2.09	3.43	1.25	0.90	1.06	0.43	No	C or S	0.53	6	2
		mm	53.1	2213	31.8	22.9	26.9	10.9			15		

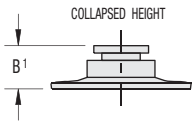
* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. **VCR-D15P-S** (for Silicone material). See Chart below for material specifications.

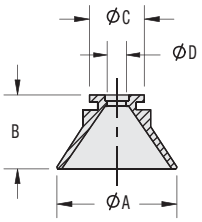
Fittings: To order fittings, please reference the fitting groups section for the approriate part numbers.

† Cup Type number is very useful when navigating the Vaccon website for CAD drawings.

The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF. For fitting weights, see pages 263-266.

Material	Color	Temperature Range
V-Blk - Vinyl	Black	+32°F to +125°F (0°C to +52°C)
V-Clr - Vinyl	Clear	+32°F to +125°F (0°C to +52°C)
C - Chloroprene	Black	-40°F to +230°F (-40°C to +110°C)
S - Silicone	Translucent	-92°F to +392°F (-69°C to +200°C)





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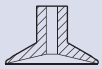
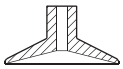
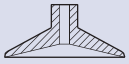
Ultra Miniature Cups

Ultra-Miniature cups are ideal for use in picking up extremely small parts such as computer chips, wafers and electronics components. In high temperature materials, Ultra-miniature cups may be used in laboratory and food processing environments.

Part Number			A - O.D.	Approx. Area sq. in. [sq.mm]	B - Height	C	D	E	Cleats	Standard Material	Optional Material	Weight oz [g]	Probe
VC-V1 093-*		in.	0.09	0.01	0.16	0.08	0.04	0.02	No	B	ESD or R	0	S050-5 S050-10 A050-5 A050-10
		mm	2.4	4	4.1	2.0	1.0	0.5				0	
VC-V1 125-*		in.	0.13	0.01	0.18	0.10	0.06	0.04	No	B	ESD or R	0	
		mm	3.2	8	4.6	2.5	1.5	0.9				0	
VC-V1 188-*		in.	0.19	0.03	0.20	0.13	0.06	0.04	No	B	ESD or R	0	
		mm	4.8	18	5.1	3.3	1.5	0.9				0	
VC-V1 250-*		in.	0.25	0.05	0.20	0.10	0.06	0.04	No	B	ESD or R	0	
		mm	6.4	32	5.1	2.5	1.5	0.9				0	
VC-V1 375-*		in.	0.38	0.11	0.25	0.13	0.06	0.04	No	B	ESD or R	0	S075-5 S075-10 A075-5 A075-10
		mm	9.5	71	6.4	3.3	1.5	0.9				0.1	
VC-V1 500-*		in.	0.50	0.20	0.30	0.16	0.06	0.04	No	B	ESD or R	0	
		mm	12.7	127	7.6	4.1	1.5	0.9				0.1	
VC-V1 625-*		in.	0.63	0.31	0.31	0.16	0.06	0.04	No	B	ESD or R	0.01	
		mm	15.9	198	7.9	4.1	1.5	0.9				0.3	
VC-V1 750-*		in.	0.75	0.44	0.32	0.16	0.06	0.04	No	B	ESD or R	0.02	
		mm	19.1	285	8.1	4.1	1.5	0.9				0.5	

* **How to Order:** All part numbers ending with a dash require customer to specify a material type to complete part number. I.E. **VC-V1 093-B** (for Buna-N material). See Chart below for material specifications.

How to Order Probes: Specify part number from probe chart. See page 269.

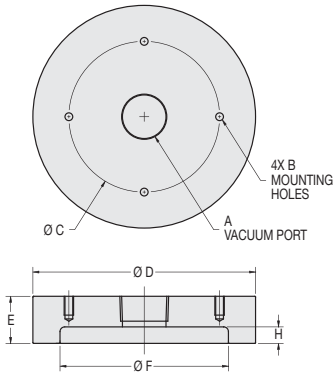
The weight of the cups shown is without fittings unless the fitting is standard ie: 1/4 NPTF.

Material	Color	Temperature Range
B - Buna-N static dissipative (ESD-safe) non-marking	Black	-5°F to +250°F (-15°C to +121°C)
ESD - Hi-Temp conductive (ESD-safe) silicone	Black	-65°F to +445°F (-55°C to +230°C)
R - Hi-Temp (non-ESD-safe) silicone	Red	-65°F to +480°F (-55°C to +250°C)

UH Rigid Cups

Ideal for porous material handling applications.

Material: UHMW



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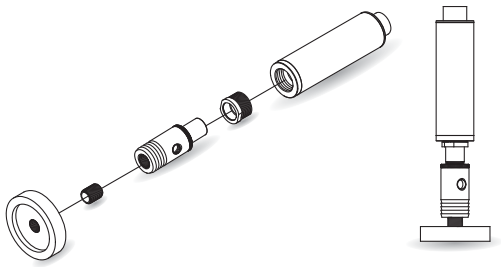

CDF Assembly with UH Cup and attachment

UH Series Cup	Imperial Dimensions (in.)							
	A	B	C	D	E	F	H	Weight
VC-UH6-16	1" NPT	1/4-20 x .50 deep	4.00	5.91	1.25	4.47	0.44	14.8 oz
VC-UH6-16-TL	1" NPT	1/4-20 x .50 deep	4.00	5.91	1.25	5.60	0.44	12.2 oz
	Metric Dimensions (mm)							
	A	B	C	D	E	F	H	Weight
I-VC-UH6-16	G 1	M6 X 1.0 x 12mm deep	101.6	150.1	31.8	113.5	11.2	420 grams
I-VC-UH6-16-TL	G 1	M6 X 1.0 x 12mm deep	101.6	150.1	31.8	142.2	11.2	346 grams

Specialty Cups

Consult factory for available styles, materials, and sizes.

Vaccon Cups by Part Number

Vacuum Cup Fittings

Ideal Applications:

- Automation assembly fixtures
- Robotic end effectors
- End-of-Arm Tooling devices

Fixed Extension Bracket with vacuum fitting and cup assembly. Inset: Vacuum fitting and vacuum cup.

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Designed with large thru bores, Vaccon fittings connect to vacuum cups, vacuum pumps and spring levelers ensuring unrestricted vacuum flow for safe material handling operations.

For plumbing flexibility, Vaccon offers 9 different fitting groups with various thread sizes.

Standard Fittings:

- Clear chromate coated aluminum or brass
- NPT, M5 and 1032 threads
- Male and female threads

How to Specify:

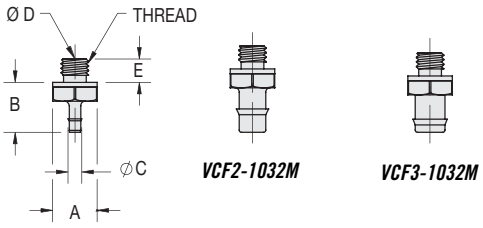
Size the cup first based on application requirements. Then choose the fitting size. Please note Vaccon's Cup Section includes recommended fitting groups for each cup.

For fitting only: order by model # i.e. VCF4-18F

For cup and fitting: order cup part number first and then the numbered extension of the fitting i.e. **VCR-B20P-C-4-14M** (**note:** remove the VCF from fitting number)

Fitting Groups 1, 2, 3

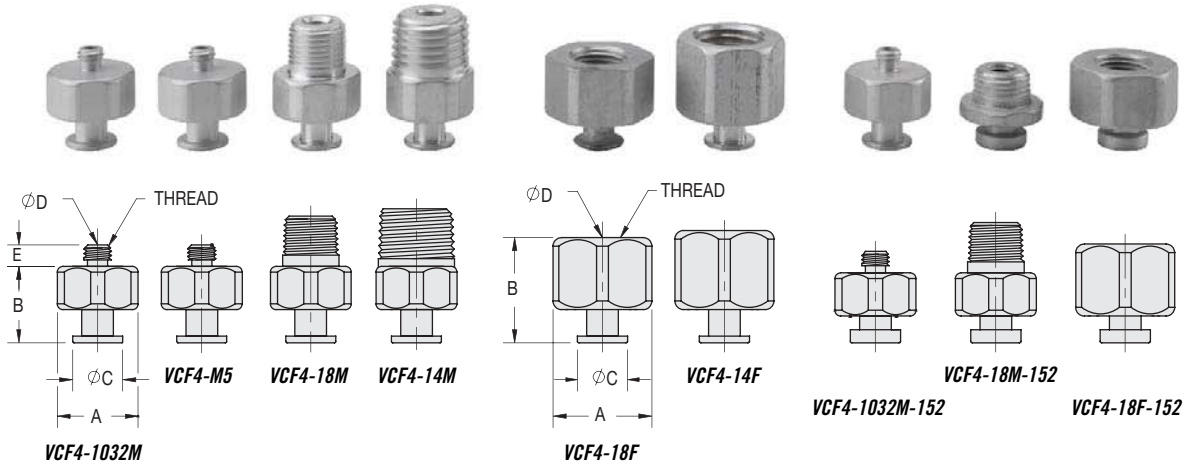
VCF1-1032M *VCF2-1032M* *VCF3-1032M*



VCF1-1032M *VCF2-1032M* *VCF3-1032M*

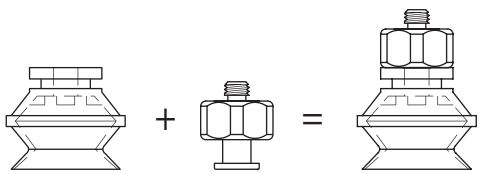
Model #	Thread Size		Dimensions					Weight	Material
			A (Hex)	B	C	D (Thru Hole Dia.)	E		
VCF1-1032M	10-32 MALE	in.	0.31	0.35	1.10	0.05	0.16	0.07 oz	Brass
		mm	7.9	8.9	2.5	1.4	4.1	2 g	
VCF2-1032M	10-32 MALE	in.	0.31	0.44	0.24	0.09	0.16	0.1 oz	Brass
		mm	7.9	11.2	6.1	2.2	4.1	2.8 g	
VCF3-1032M	10-32 MALE	in.	0.31	0.39	0.24	0.09	0.16	0.1 oz	Brass
		mm	7.9	9.9	6.1	2.4	4.1	2.8 g	

Fitting Group 4



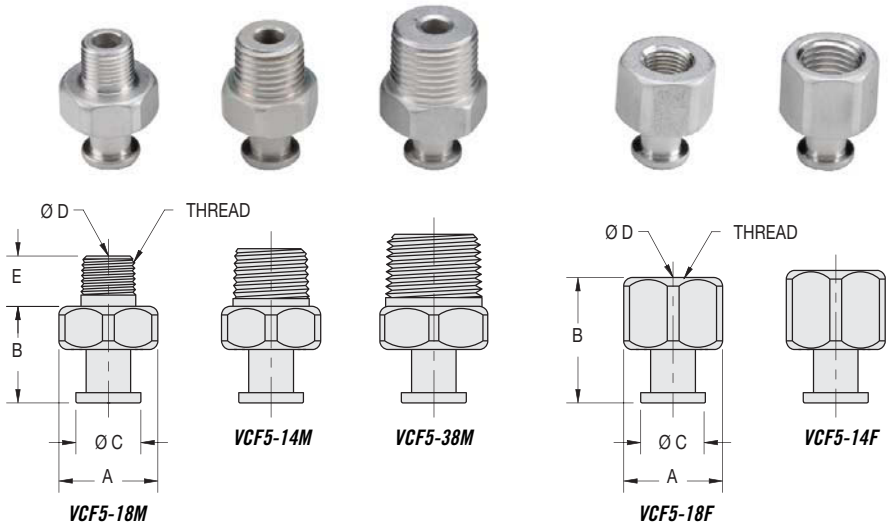
Model #	Thread Size		Dimensions					Weight	Material
			A (Hex)	B	C	D (Thru Hole Dia.)	E		
VCF4-1032M	10-32 Male	in	0.56	0.53	0.35	0.09	0.15	0.2 oz	Aluminum
		mm	14.3	13.5	8.8	2.4	3.8	5.7 g	
VCF4-M5	M5 X 0.8 Male	in	0.56	0.53	0.35	0.09	0.15	0.2 oz	Aluminum
		mm	14.3	13.5	8.8	2.4	3.8	5.7 g	
VCF4-18M	1/8 NPT Male	in	0.56	0.53	0.35	0.17	0.35	0.2 oz	Aluminum
		mm	14.3	13.5	8.8	4.4	8.9	5.7g	
VCF4-14M	1/4 NPT Male	in	0.56	0.53	0.35	0.17	0.40	0.3 oz	Aluminum
		mm	14.3	13.5	8.8	4.4	10.2	8.5 g	
VCF4-18F	1/8 NPT Female	in	0.69	0.73	0.35	0.17	N/A	0.3 oz	Aluminum
		mm	17.4	18.5	8.8	4.4	N/A	8.5 g	
VCF4-14F	1/4 NPT Female	in	0.69	0.78	0.35	0.17	N/A	0.3 oz	Aluminum
		mm	17.4	19.8	8.8	4.4	N/A	8.5 g	
VCF4-1032M -152*	10-32 Male	in	0.56	0.49	0.35	0.09	0.15	0.2 oz	Aluminum
		mm	14.3	12.3	8.8	2.4	3.8	5.7 g	
VCF4-18M -152*	1/8 NPT Male	in	0.56	0.49	0.35	0.17	8.9	0.2 oz	Aluminum
		mm	14.3	12.3	8.8	4.4	8.9	5.7 g	
VCF4-18F -152*	1/8 NPT Female	in	0.69	0.69	0.35	0.17	N/A	0.3 oz	Aluminum
		mm	17.4	17.4	8.8	4.4	N/A	8.5 g	

*Fittings designed specifically for VCN-152(B, C) cups.

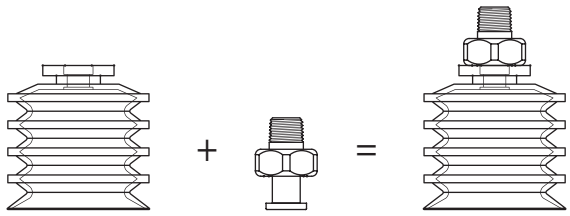


Example: Cup with Fitting

Fitting Group 5

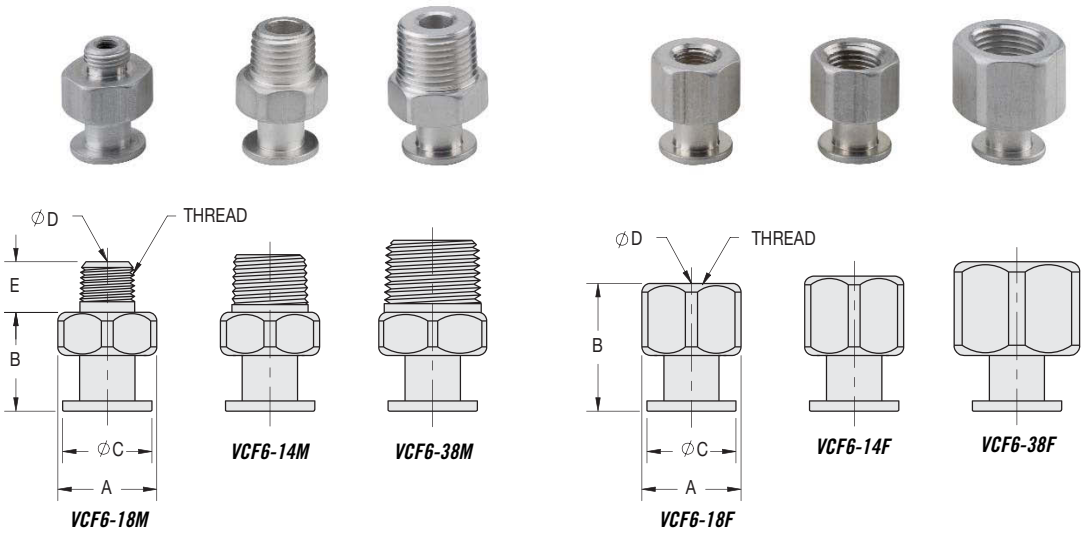


Model #	Thread Size		Dimensions					Weight	Material
			A (Hex)	B	C	D (Thru Hole Dia.)	E		
VCF5-18M	1/8 NPT Male	in	0.69	0.67	0.45	0.22	0.35	0.3 oz	Aluminum
		mm	17.4	17.0	11.4	5.6	8.9	8.5 g	
VCF5-14M	1/4 NPT Male	in	0.69	0.67	0.45	0.22	0.40	0.3 oz	Aluminum
		mm	17.4	17.0	11.4	5.6	10.2	8.5 g	
VCF5-38M	3/8 NPT Male	in	0.75	0.67	0.45	0.22	0.50	0.4 oz	Aluminum
		mm	19.1	17.0	11.4	5.6	12.7	11 g	
VCF5-18F	1/8 NPT Female	in	0.69	0.87	0.45	0.22	N/A	0.3 oz	Aluminum
		mm	17.4	22.1	11.4	5.6	N/A	8.5 g	
VCF5-14F	1/4 NPT Female	in	0.69	0.92	0.45	0.22	N/A	0.3 oz	Aluminum
		mm	17.4	23.4	11.4	5.6	N/A	8.5 g	

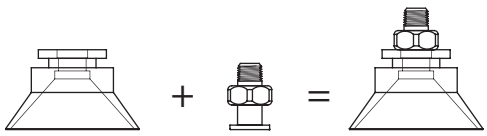


Example: Cup with Fitting

Fitting Group 6



Model #	Thread Size		Dimensions					Weight	Material
			A (Hex)	B	C	D (Thru Hole Dia.)	E		
VCF6-18M	1/8 NPT Male	in	0.69	0.69	0.62	0.28	0.35	0.4 oz	Aluminum
		mm	17.4	17.4	15.7	7.1	8.9	11 g	
VCF6-14M	1/4 NPT Male	in	0.69	0.69	0.62	0.28	0.40	0.3 oz	Aluminum
		mm	17.4	17.4	15.7	7.1	10.2	8.5 g	
VCF6-38M	3/8 NPT Male	in	0.75	0.69	0.62	0.28	0.50	0.5 oz	Aluminum
		mm	19.1	17.4	15.7	7.1	12.7	14 g	
VCF6-18F	1/8 NPT Female	in	0.69	0.89	0.62	0.28	N/A	0.3 oz	Aluminum
		mm	17.4	22.5	15.7	7.1	N/A	8.5 g	
VCF6-14F	1/4 NPT Female	in	0.69	0.94	0.62	0.28	N/A	0.4 oz	Aluminum
		mm	17.4	23.7	15.7	7.1	N/A	11 g	
VCF6-38F	3/8 NPT Female	in	0.88	1.04	0.62	0.28	N/A	0.4 oz	Aluminum
		mm	22.2	26.3	15.7	7.1	N/A	11 g	



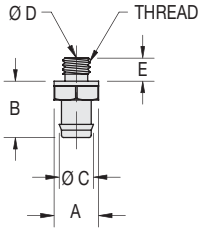
Example: Cup with Fitting

Fitting Group 7

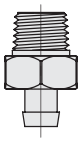
VCF7-1032M

VCF7-18M

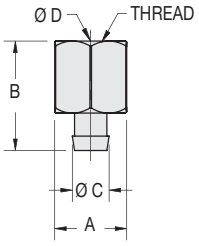
VCF7-18F



VCF7-1032M



VCF7-18M



VCF7-18F

Model #	Thread Size		Dimensions					Weight	Material
			A (Hex)	B	C	D (Thru Hole Dia.)	E		
VCF7-1032M	10-32 Male	in	0.31	0.39	0.24	0.09	0.16	0.1 oz	Brass
		mm	7.9	9.9	6.1	2.4	4.1	2.8 g	
VCF7-18M	1/8 NPT Male	in	0.50	0.49	0.26	0.16	0.30	0.4 oz	Brass
		mm	12.7	12.4	6.5	4.1	7.6	11 g	
VCF7-18F	1/8 NPT Female	in	0.50	0.76	0.26	0.16	N/A	0.4 oz	Brass
		mm	12.7	19.3	6.5	4.1	N/A	11 g	

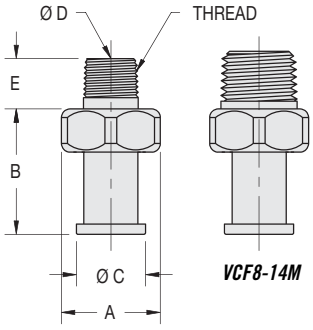
Fitting Group 8

VCF8-18M

VCF8-14M

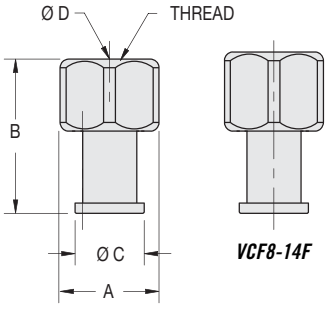
VCF8-18F

VCF8-14F



VCF8-18M

VCF8-14M

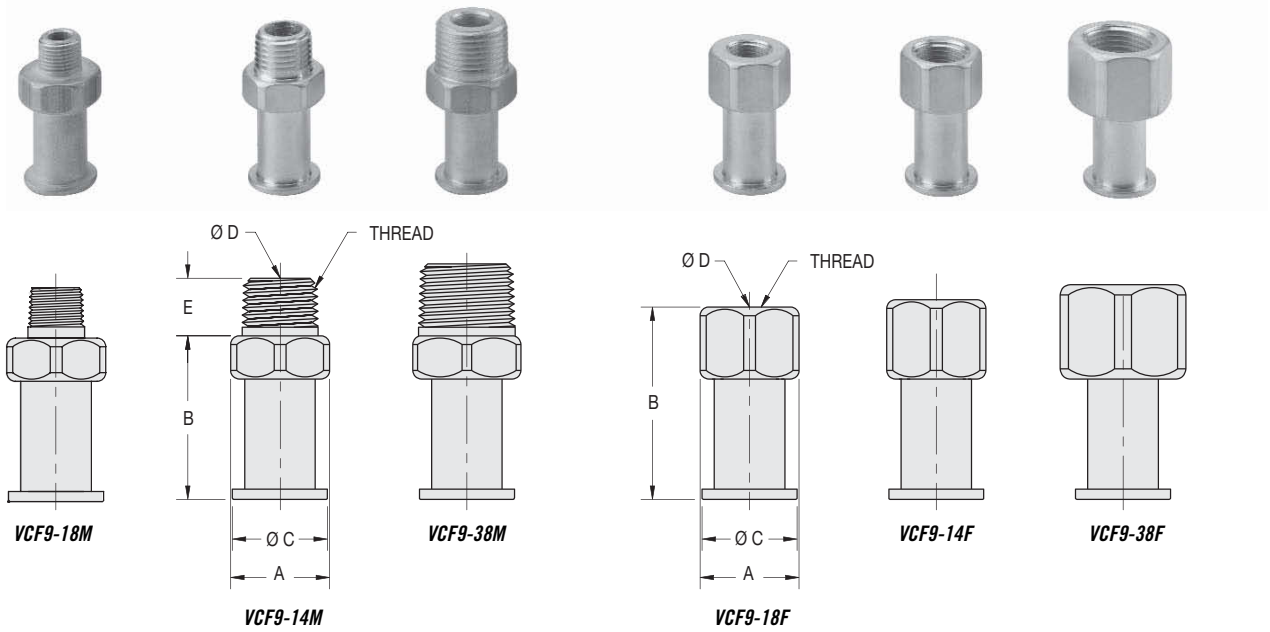


VCF8-18F

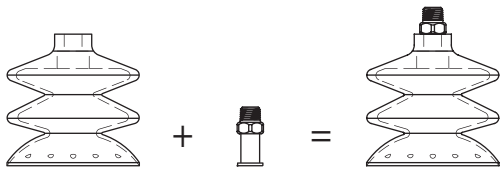
VCF8-14F

Model #	Thread Size		Dimensions					Weight	Material
			A (Hex)	B	C	D (Thru Hole Dia.)	E		
VCF8-18M	1/8 NPT Male	in	0.69	0.87	0.48	0.28	0.35	0.3 oz	Aluminum
		mm	17.4	22.1	12.2	7.1	8.9	8.5 g	
VCF8-14M	1/4 NPT Male	in	0.69	0.87	0.48	0.28	0.40	0.3 oz	Aluminum
		mm	17.4	22.1	12.2	7.1	10.2	8.5 g	
VCF8-18F	1/8 NPT Female	in	0.69	1.07	0.48	0.28	N/A	0.3 oz	Aluminum
		mm	17.4	27.2	12.2	7.1	N/A	8.5 g	
VCF8-14F	1/4 NPT Female	in	0.69	1.12	0.48	0.28	N/A	0.3 oz	Aluminum
		mm	17.4	28.4	12.2	7.1	N/A	8.5	

Fitting Group 9



Model #	Thread Size		Dimensions					Weight	Material
			A (Hex)	B	C	D (Thru Hole Dia.)	E		
VCF9-18M	1/8 NPT Male	in	0.69	1.14	0.66	0.22	0.35	0.4 oz	Aluminum
		mm	17.4	28.8	16.8	5.6	8.9	11 g	
VCF9-14M	1/4 NPT Male	in	0.69	1.14	0.66	0.34	0.40	0.4 oz	Aluminum
		mm	17.4	28.8	16.8	8.6	10.2	11 g	
VCF9-38M	3/8 NPT Male	in	0.75	1.14	0.66	0.34	0.50	0.6 oz	Aluminum
		mm	19.1	28.8	16.8	8.6	12.7	17 g	
VCF9-18F	1/8 NPT Female	in	0.69	1.34	0.66	0.34	N/A	0.4 oz	Aluminum
		mm	17.4	33.9	16.8	8.6	N/A	11 g	
VCF9-14F	1/4 NPT Female	in	0.69	1.39	0.66	0.34	N/A	0.4 oz	Aluminum
		mm	17.4	35.2	16.8	8.6	N/A	11 g	
VCF9-38F	3/8 NPT Female	in	0.75	1.49	0.66	0.34	N/A	0.5 oz	Aluminum
		mm	19.1	37.8	16.8	8.6	N/A	14 g	



Example: Cup with Fitting

Probes

For Ultra Miniature Vacuum Cups and Vacuum Pencil Kits

Configurator, CAD Drawings, and On-line Store

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Straight or angled probes

Vaccon probes attach directly to Vaccon's vacuum pencil and ultra-miniature cups for simple, manual placement of small parts.

See ultra-miniature cups on page 259.

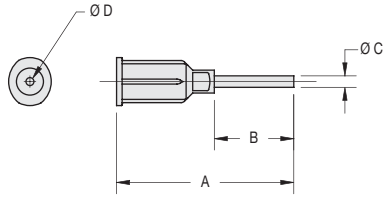
Standard Probe:

- Material: anodized aluminum
- Straight or angled
- Push on/slip fit connection to ultra-mini cups and pencils

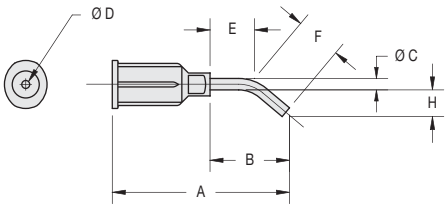
Probes sold individually or as part of a Vaccon Vacuum Pencil Kit: **VH-8-KIT** **See page 271.**

Ideal Applications:

- Electronics
- Pick and place small components
- High temperature
- Medical



Straight Probes – "S"



Angled Probe – "A"

Model #		Description	Dimensions							Weight
			A	B	C	D	E	F	H	
S050-5	in.	Straight Probe 1/2" Length	1.12 [28.4]	0.50 [12.7]	0.05	0.03	N/A	N/A	N/A	0.02 oz 0.7 g
	mm				1.3	0.8				
S075-5	in.				0.072	0.05				
	mm				1.8	1.3				
S050-10	in.	Straight Probe 1" Length	1.62 [41.1]	1.00 [25.4]	0.050	0.03	N/A	N/A	N/A	0.03 oz 0.8 g
	mm				1.3	0.8				
S075-10	in.				0.072	0.05				
	mm				1.8	1.3				
A050-5	in.	Angled Probe 1/2" Length	1.12 [28.4]	0.50 [12.7]	0.05	0.03	0.26	0.31	0.19	0.02 oz 0.7 g
	mm				1.3	0.8	6.6	8.0	4.8	
A075-5	in.				0.072	0.05	0.28	0.29	0.17	
	mm				1.8	1.3	7.1	7.3	4.3	
A050-10	in.	Angled Probe 1" Length	1.62 [41.1]	1.00 [25.4]	0.050	0.03	0.76	0.31	0.19	0.03 oz 0.8 g
	mm				1.3	0.8	19.3	8.0	4.8	
A075-10	in.				0.072	0.05	0.78	0.29	0.17	
	mm				1.8	1.3	19.8	7.3	4.3	

How to Specify:

Probe only: Order by model # i.e. **A050-5**

Manual Pick and Place of Small Components

Vacuum Pencil Kit: VH-8-KIT

Compressed air required to power ultra-mini vacuum pump/probe/cup assembly.

Ideal Applications:

- Electronics
- Glass handling
- High temperature
- Medical
- Miniature assembly operations

Benefits/Features:

- Lightweight – comfortable to handle
- Quiet – positive work environment
- Easy to assemble – no tools required
- Flexible – quick change of cups and probes for different applications

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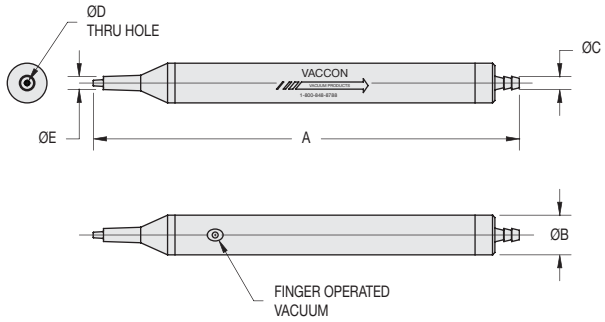
Utilizing a miniature Vaccon venturi vacuum pump as its vacuum source, the vacuum pencil kit includes a vacuum pump, vacuum pencil and a variety of interchangeable ultra-mini cups and probes.

Vaccon's Vacuum Pencil easily adapts to handling different objects by simply changing the vacuum cup and probe. Lightweight and compact, the vacuum pencil kit is ideal for bench top work.

VH-8-KIT: Kit includes:

- 4 straight probes, 4 angled probes
- 8 Ultra-mini cups – variety of materials and sizes (anti-static for handling electronics, silicone for high temperatures – see page 259)
- 1 VH3020-8 vacuum pencil
- 1 JS-40UM vacuum pump w/inlet, exhaust and vacuum fittings – generates up to 27"Hg
- Coiled polyurethane vacuum tubing

Vacuum Pencil

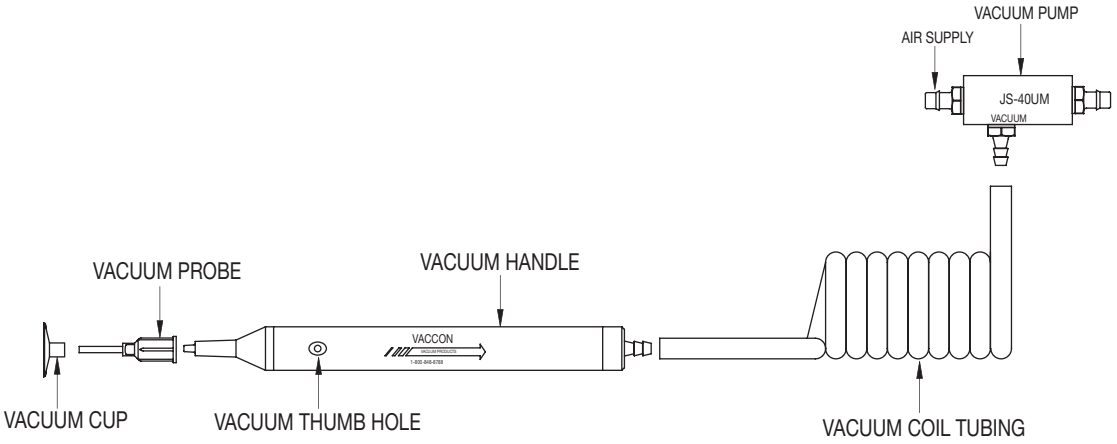


Model #		Dimensions					Weight
		A	B	C	D	E	
VH3020-8	in.	5.87	0.50	0.17	0.02	0.16	0.6 oz
	mm	149.1	12.7	4.2	0.6	4.2	17 g

How to Specify:

Vacuum Pencil only: VH3020-8
Vacuum Pencil Kit: VH-8-KIT
Ultra-Mini cups only: See page 259
Probes only: See page 269

Vaccon Vacuum Pencil Setup and Operating Instructions



Set Up:

The following is the recommended setup for the vacuum pencil.

1. Connect air supply line 1/4 O.D. x 3/16 I.D. (not included in kit) onto factory installed barbed fitting on air supply port of vacuum pump.
2. Connect vacuum coil tube (included in kit) onto factory installed barbed fitting on vacuum port of vacuum pump.
3. Connect opposite end of vacuum coil onto barbed end of vacuum pencil.
4. Turn on compressed air supply (80 PSI recommended). Vacuum handle is ready for operation.

Operating Instructions:

1. Choose desired probe from vacuum kit and hand press onto end of vacuum pencil.
2. Choose desired vacuum cup from vacuum kit and press onto end of probe.
3. By covering and uncovering the thumb hole, the operator can easily grip and release the part.

Vacuum Check Valves

For vacuum applications requiring high flow and low cracking pressure

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Ideal Applications:

- Clamping and vacuum chucking
- Pick and place of heavy loads
- Hold vacuum while molds cool
- Vessel evacuation
- Lifting systems
- Material handling applications

Features/Benefits:

- Productive – high flow capacity for rapid evacuation
- Safe – minimum flow restriction ensures holding force
- Energy efficient – extremely low cracking pressure <1"Hg [34mbar] reaches vacuum level quickly
- Compact & lightweight – easily mounts to Vaccon or non-Vaccon vacuum products

Options:

- Additional sensor/switch port for positive pressure release
- 3 Body sizes
- 5 Thread sizes – 1/8" to 3/4" NPT

Vaccon vacuum check valves seal and hold vacuum for safe, energy efficient operations for clamping, pick and place and vessel evacuation applications. Vaccon vacuum check valves are designed specifically for vacuum applications. They offer high flow capacity with minimal flow restriction and feature extremely low cracking pressures of less than 1"Hg. The large unrestricted flow path ensures high flow at low vacuum levels. The low cracking pressure allows the vacuum system to reach its maximum vacuum level before the check valve seals off the system.

With their high flow capacity and low cracking pressure, Vaccon vacuum check valves offer rapid evacuation which increases process or production speed and reduces cycle times for more efficient operations.

In contrast, most spring-loaded check valves marketed today are designed for high pressure systems and have high cracking pressures. When used in vacuum applications, spring-loaded check valves severely restrict vacuum flow, hindering the performance of the vacuum pump by slowing down evacuation speed and wasting energy

Vaccon vacuum check valves are made of durable anodized aluminum with an internal flexible valve sealing mechanism.

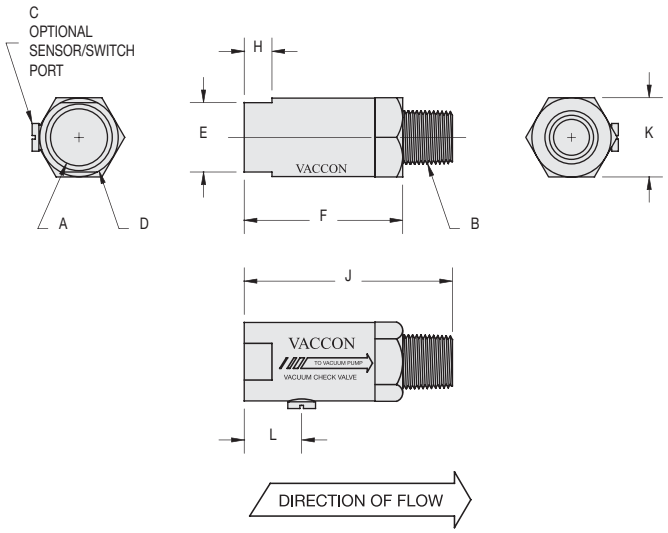
Vaccon Vacuum Check Valves may be used with non-Vaccon vacuum products.

Model #	Cracking Pressure	Maximum Vacuum Flow w/Zero Flow Restriction	Body Material	Valve Material	Proper Check Valve/Pump Combination (matched by flow and port size)
VCV-75-18	4.3" H_20 [10.7 mbar]	4.0 SCFM [113 lpm]	Anodized Aluminum	EPDM	HVP-100
					J Series pumps 60 through 150
					VP Series pumps 60 through 150
VCV-75-14					HVP-200
					VDF 100 and 150
					VP Series pumps 60 through 150
VCV-100-14	1.6" H_20 [4.0 mbar]	20.0 SCFM [566 lpm]	Anodized Aluminum	Silicone	HVP-300
					VDF 200 and 250
VCV-100-38					J Series - 200 and 250
					VP80 Series - 200 and 250
VCV-100-12					For use with non-Vaccon products
VCV-125-38	2.7" H_20 [6.7 mbar]	30.0 SCFM [849 lpm]	Anodized Aluminum	EPDM	J Series - 200 and 250
					VP80 Series - 200 and 250
VCV-125-12					VDF-375
					J Series 350
					VP Series 300 and 350

VCV-75 Series

VCV-100 Series

VCV-125 Series



Model #		Dimensions										
		A	B	C	D	E	F	H	J	K	L	Weight
VCV-75-18	in	1/4 NPT F	1/8 NPT M	10-32	0.74 [18.8]	0.63 [15.9]	1.50 [38.1]	0.25 [6.4]	1.83	0.75 [19.1]	0.59 [14.9]	0.7 oz
	mm								46.5			20 g
VCV-75-14	in	1/4 NPT F	1/4 NPT M						1.90			0.8 oz
	mm								48.3			23 g
VCV-100-14	in	1/2 NPT F	1/4 NPT M	10-32	0.99 [25.1]	0.88 [22.2]	2.00 [50.8]	0.35 [8.9]	2.40	1.00 [25.4]	0.73 [18.4]	1.5 oz
	mm								61.0			43 g
VCV-100-38	in	1/2 NPT F	3/8 NPT M						2.44			1.4 oz
	mm								62.0			40 g
VCV-100-12	in	1/2 NPT F	1/2 NPT M						2.78			1.5 oz
	mm								70.6			43 g
VCV-125-38	in	3/4 NPT F	3/8 NPT M	10-32	1.24 [31.5]	1.13 [28.6]	2.00 [50.8]	0.35 [8.9]	2.44	1.25 [31.8]	0.73 [18.4]	2.5 oz
	mm								62.0			71 g
VCV-125-12	in	3/4 NPT F	1/2 NPT M						2.78			2.1 oz
	mm								70.6			60 g

How to Specify:

Order check valve by part number i.e. VCV-125-12.

For metric availability, please consult factory.

Vacuum Gauges

Features/Benefits:

- Accurate monitoring – easy visual confirmation for operator, ensures consistent performance
- Effective diagnostic tool – debug and troubleshoot systems
- Economical – low cost, long life

Options:

- Dry or glycercin filled
- 3 mounting positions: bottom mount, center back mount or panel mount
- 2 dial sizes
- Materials available: Black ABS or Steel

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VP20-100H with VG-150 vacuum gauge, VSXN vacuum switch with QD quick disconnect

Vaccon vacuum gauges are used in almost every area of automation including applications in pneumatics, process control, packaging, printing, medical, food and pharmaceutical.

Glycerin filled gauges extend gauge life and increase readability by dampening pulsing and vibration. All glycerin filled gauges feature a stainless steel case and bezel.

All gauges are protected with a limiting orifice to limit pressure shock. Standard dial faces have a dual scale in "Hg and Bar.

Model #	Type	Dial Size	Dual Scale Dial Range	Case	Bezel	Crystal	Bourdon Tube	Movement and Connection	Shock Protection	Accuracy
Lower Mount										
VG-150	Dry	1.50"	0 to 30"Hg [0 to -1 bar]	Black ABS	None	Snap-on polycarbonate	Phosphor Bronze	Brass	0.5mm restrictor orifice	ASME B 40.1 Grade B (±3-2-3% of span)
VG-150-GF	Glycerin filled			Stainless Steel	Stainless Steel	Polycarbonate				
VG-200-SS	Dry	2.00"								
VG-200-SS-GF	Glycerin filled									
Center Back Mount										
VG-150-CBM	Dry	1.50"	0 to 30"Hg [0 to -1 bar]	Black ABS	None	Snap-on polycarbonate				
Panel Mount										
VG-150-PM	Dry	1.50"	0 to 30"Hg [0 to -1 bar]	Stainless Steel	Stainless Steel	Polycarbonate				
VG-150-PMG	Glycerin filled									
VG-200-PM	Dry	2.00"								

For material availability, please consult factory.

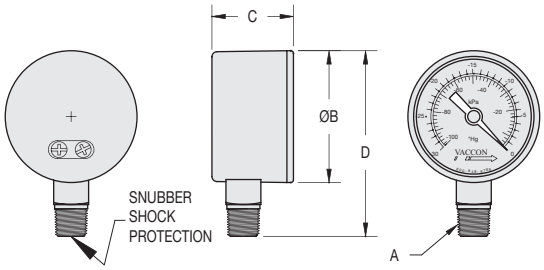
Standard Vacuum Gauge: Bottom Mount

VG-150

VG-150-GF

VG-200-SS-GF

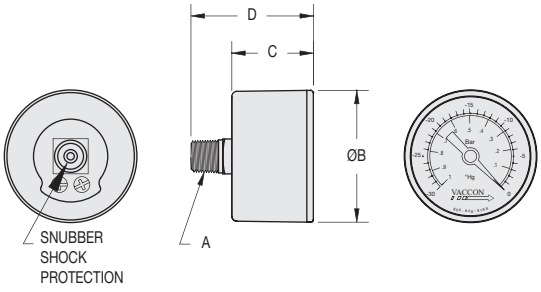
VG-200-SS



Model #	Type		A Port Connection	B - Face Dia.	C	D	Weight
VG-150	Dry	in	1/8" NPT	1.62	1.00	2.28	1.5 oz
		mm		41.1	25.4	57.9	43 g
VG-150-GF	Glycerin filled	in	1/8" NPT	1.85	1.00	2.42	2.7 oz
		mm		47.0	25.4	61.5	77 g
VG-200-SS	Dry	in	1/4" NPT	2.09	1.05	2.81	3.1 oz
		mm		53.1	26.7	71.4	88 g
VG-200-SS-GF	Glycerin filled	in	1/4" NPT	2.32	1.03	3.10	4.8 oz
		mm		58.9	26.2	78.7	136 g

Vacuum Gauge: Center Back Mount

VG-150-CBM

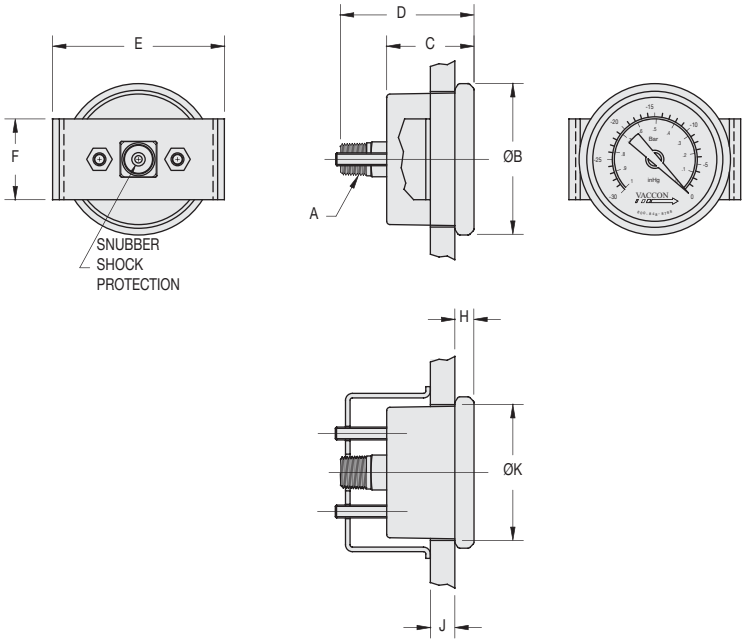


Model #	Type		A Port Connection	B - Face Dia.	C	D	Weight
VG-150-CBM	Dry	in.	1/8" NPT	1.62	1.00	1.50	1.6 oz
		mm		41.1	25.4	38.1	45 g

Vacuum Gauge: Panel Mount

VG-150-PM/VG-200-PM

VG-150-PMG



Model #	Type		A Port Connection	B - Face Dia.	C	D	E	F	H	J - Max. Panel Thickness	K - Panel Cutout +/-.03	Weight
VG-150-PM	Dry	in.	1/8" NPT	1.85	1.07	1.64	2.11	0.99	0.24	0.30	1.67	3.3 oz
		mm		47.0	27.2	41.7	53.6	25.1	6.1	7.6	42.3	94 g
VG-150-PMG	Glycerin filled	in.	1/8" NPT	1.85	1.07	1.90	2.38	1.02	0.24	0.80	1.67	3.6 oz
		mm		47.0	27.2	48.3	60.5	25.9	6.1	20.3	42.3	102 g
VG-200-PM	Dry	in.	1/4" NPT	2.32	1.03	1.60	2.81	0.99	0.20	0.10	2.07	4.7 oz
		mm		58.9	26.2	40.6	71.4	25.1	5.1	2.5	52.6	133 g

How to Specify:

Gauges should be ordered by model number as a separate line item as they are individually packaged for protection during shipping.

Pressure Gauges

Features/Benefits:

- Accurate monitoring – easy visual confirmation for operator, ensures consistent performance
- Effective diagnostic tool – debug and troubleshoot systems
- Economical – low cost, long life

Options:

- Dry or glycerin filled
- 2 mounting positions: bottom mount, center back mount
- Materials available: Black ABS or Steel

Configurator, CAD Drawings, and On-line Store

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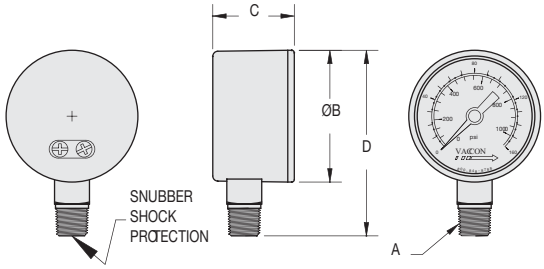
Vaccon pressure gauges are used in almost every area of automation including applications in pneumatics, process control, packaging, printing, medical, food and pharmaceutical.

All gauges are protected with a limiting orifice to limit pressure shock. Standard dial faces have a dual scale in PSI and BAR.

Model #	Type	Dial Size	Dual Scale Dial Range	Case	Bezel	Crystal	Bourdon Tube	Movement and Connection	Shock Protection	Accuracy
Bottom Mount										
PG-150	Dry	1.50"	0 to 150 PSI [0 to 10 bar]	Black ABS	None	Snap-on polycarbonate	Phosphor Bronze	Brass	0.5mm restrictor orifice	ASME B 40.1 Grade B (±3-2-3% of span)
Center Back Mount										
PG-150-CBM	Dry	1.50"	0 to 150 PSI [0 to 10 bar]	Black ABS	None	Snap-on polycarbonate	Phosphor Bronze	Brass	0.5mm restrictor orifice	ASME B 40.1 Grade B (±3-2-3% of span)

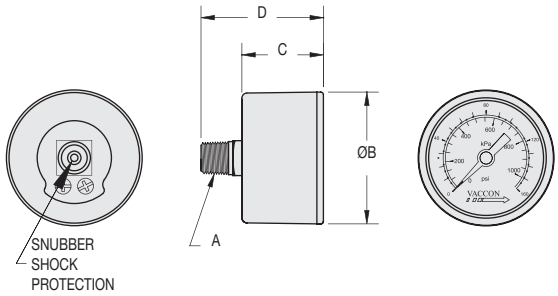
For material availability, please consult factory.

Standard Pressure Gauge: Bottom Mount



Model #	Type		A Port Connection	B - Face Dia.	C	D	Weight
PG-150	Dry	in.	1/8" NPT	1.62	1.00	2.27	1.5 oz
		mm		41.1	25.4	57.7	43 g

Pressure Gauge: Center Back Mount



Model #	Type		A Port Connection	B - Face Dia.	C	D	Weight
PG-150-CBM	Dry	in.	1/8" NPT	1.62	1.00	1.50	1.6 oz
		mm		41.1	25.4	38.1	45 g

How to Specify:

Gauges should be ordered by model number as a separate line item as they are individually packaged for protection during shipping.

In-Line Vacuum Filters

VFC-1500F vacuum filter with replacement element

Features/Benefits:

- **High flow – no restrictions, maximum operating efficiency**
- **10 Micron filtration – protects pumps and equipment from dirt and dust**
- **10 Models and sizes – fit most manufacture's vacuum pumps and models**
- **Easy to install and service – without removing from production line**
- **Economical – pleated element's large surface area provides longer filter life. Low-cost replacement elements available.**
- **Reliable, durable and worry-free operation – protects pumps, valves, and equipment from dirty, dusty environments**
  - **~ Long Life**
  - **~ Longer service time**
  - **~ Less maintenance**
  - **~ Low operating costs**

In-Line Vacuum Filters

Add Vaccon's compact in-line vacuum filters to vacuum lines or air-supply lines to trap dirt and debris from entering the process, or to the exhaust port to capture airborne contaminants.

Vaccon's pleated-element design offers a filter with significantly longer life and much higher flow capacity than non-pleated, porous plastic designs. The large surface area increases filter life while reducing maintenance costs.

Ideal for use in dirty, dusty applications:

- Material handling equipment
- Printing
- Paper and pulp
- Wood chips
- Powder and plastic dust

The durable injection molded nylon and polycarbonate construction of the VF models and the metal construction of the VFC-1500F handle the most challenging environments. The 10-micron paper filters are rated for full vacuum to 150 PSI [10BAR] pressure.

You can use Vaccon inline-filters in conjunction with any manufacturer's vacuum pumps.

Please Note: Under normal conditions, Vaccon's unique single-stage pumps do not require filters for maximum operating efficiency.

Filter Options:

- Low (short) and tall (long) profiles
- Male and female NPT connections
- Plastic or metal filters

Configurator, CAD Drawings, and On-line Store

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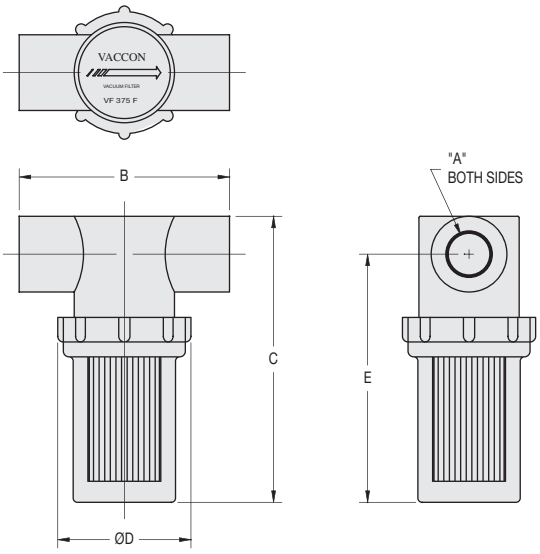
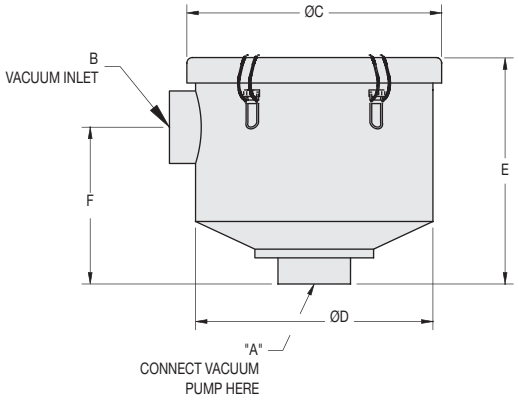


VF models (nylon/clear polycarbonate)



VFC-1500F (metal)

Model Number		Dimensions					Weight	Housing	Replacement Elements
		A	B	C	D	E			
VF125LPM	in	1/8" NPT M	3.04	2.38	1.90	1.97	1.9 oz	nylon & clear polycarbonate	RE1 - 3 Pack
	mm		77.2	60.5	48.3	50.0	54 g		
VF250LPM	in	1/4" NPT M	3.04	2.38	1.90	1.97	2.0 oz		
	mm		77.2	60.5	48.3	50.0	57 g		
VF250LPF	in	1/4" NPT F	3.00	2.37	1.90	1.97	2.0 oz		
	mm		76.2	60.2	48.3	50.0	57 g		
VF375LPM	in	3/8" NPT M	3.04	2.38	1.90	1.97	2.0 oz		
	mm		77.2	60.5	48.3	50.0	57 g		
VF250F	in	1/4" NPT F	3.00	3.77	1.90	3.38	2.0 oz		RE1 LB - 3 Pack
	mm		76.2	95.8	48.3	85.9	57 g		
VF375F	in	3/8" NPT F	3.00	4.08	1.90	3.54	2.0 oz		
	mm		76.2	103.6	48.3	89.9	57 g		
VF500F	in	1/2" NPT F	3.58	5.06	2.93	4.46	5.6 oz		RE2 - 3 Pack
	mm		90.9	128.5	74.4	113.3	159 g		
VF750F	in	3/4" NPT F	3.58	5.06	2.93	4.46	5.6 oz		
	mm		90.9	128.5	74.4	113.3	159 g		
VF1000F	in	1" NPT F	4.94	6.50	4.10	5.59	7.8 oz		RE3 - 3 Pack
	mm		125.5	165.1	104.1	142.0	221 g		
VF1500F	in	1 1/2" NPT F	5.08	8.06	4.10	6.94	7.8 oz		RE4 - 3 Pack
	mm		129.0	204.7	104.1	176.3	221 g		
VFC-1500F	in.	1 1/2" NPT F	1 1/2" NPT F	7.31	6.81	6.50	4.50	metal	RE-848 - 1 Pack
	mm			185.7	173.0	165.1	114.3		

How to Specify:

When ordering specify model number: **VF1500F**.

Consider size of tubing, fittings and pump. Consult factory for assistance.

Pneumatic Vacuum Switch

Converts a vacuum signal into a pneumatic signal

VSP Series

VSP-NC

Configurator, CAD Drawings, and On-line Store

Click Here

Ideal Applications:

- Clamping and vacuum chucking
- Pick and place of heavy loads
- Hold vacuum while molds cool
- Vessel evacuation
- Lifting systems
- Handling applications
- Vacuum forming

Features/Benefits:

- Normally closed
- Lightweight 2.6 oz [74g]
- Intrinsically safe – no electricity required
- Adjustable operating range from 0 to 25"Hg [0 to 847 mbar]
- Rugged and durable – all aluminum construction
- 3 Sensing ports for design flexibility – operates in any position
- Economical – saves energy – minimizes compressed air consumption
- Reliable and repeatable – diaphragm operated – long life
- Easily installed and plumbed

Options:

- Adjustment knob or slotted screw adjustment
- 2 Mounting options: panel or flat mount

Vaccon's Pneumatic Vacuum Switch provides a repeatable pneumatic output signal when reaching the user-defined vacuum set-point level and is appropriate for use in all vacuum systems.

The output signal is a voluminous 2.5 SCFM at 100 PSI, with a response time of 64 ms at 90 PSI. This high flow and fast response makes the switch ideal for high-speed pneumatic circuits with lengthy plumbing lines and for continuously monitored vacuum applications such as vacuum clamping (chucking), vacuum forming, vessel evacuation, and pick and place.

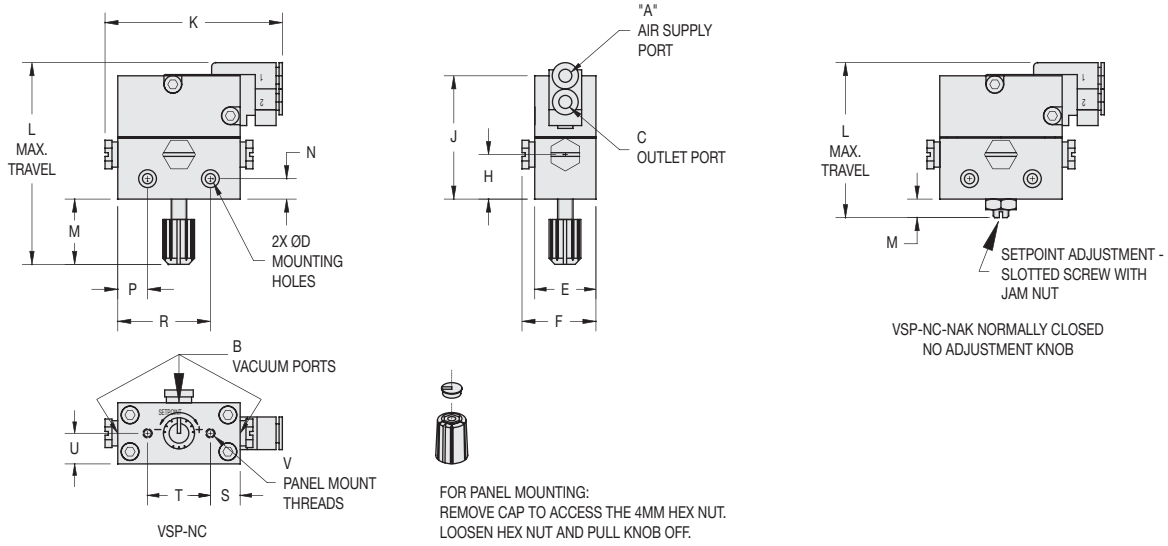
As an integral component of the Air Saver Pumps, this switch supplies the pneumatic pilot signal that closes the main valve when the preset vacuum level is reached, minimizing compressed air consumption.

The pneumatic vacuum switch is constructed of an all-aluminum body ensuring sturdy installation and durable plumbing connections that last after repeated use.

Instant push-to-connect fittings connect the air supply quickly and easily, saving assembly time and eliminating the need for additional fittings. Three 10-32 vacuum ports allow for design and plumbing flexibility, while ensuring safe, neat, and space-saving fixtures.

The adjustment knob is smooth turning for fine adjustment. If you prefer a slotted adjustment mechanism, simply remove the knob to expose the slot.

Pneumatic Vacuum Switch

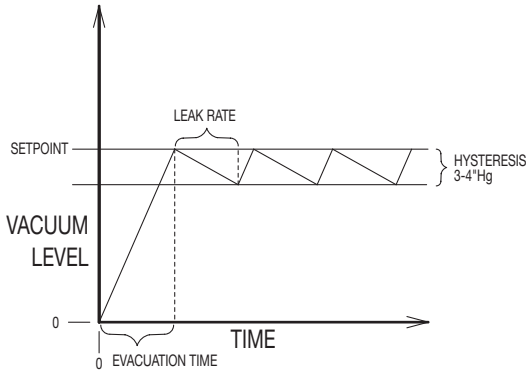


Model #		Dimensions																		Weight
		A	B	C	D	E	F	H	J	K	L	M	N	P	R	S	T	U	V	
VSP-NC	in.	5/32* PTC	10-32	5/32* PTC	0.12 [3.0]	0.75 [19.1]	0.91 [23.1]	0.55 [14.0]	1.51 [38.4]	2.17 [55.1]	2.47	0.78	0.25 [6.4]	0.36 [9.1]	1.13 [28.7]	0.36 [9.1]	0.77 [19.6]	0.4 [9.5]	4-40 [N/A]	2.6 oz [74 g]
	mm										62.7	19.8								
VSP-NC-NAK	in.										1.68	0.22								
	mm										42.7	5.6								

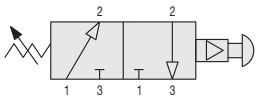
*PTC–Push-to-Connect–accepts 5/32 [4mm] tubing

Switch Operation:

The pneumatic switch is a diaphragm-actuated air valve. At vacuum levels below the switch set point, the diaphragm depresses the valve plunger, closing the valve. When the vacuum level reaches the set point, the diaphragm releases the plunger, opening the valve, and allowing air to flow from port 1 to port 2. To change the set point, turn either the adjustment knob or slotted screw.



ANSI Symbol:



How to Specify:

Normally Closed: P/N: **VSP-NC**
To order with slotted screw adjustment use P/N: **VSP-NC-NAK**

Pneumatic Vacuum Switch Specifications:

Rated Vacuum Range:	0" to 25" Hg [0 to 847 mbar]
Hysteresis:	3" to 4" Hg [102 mbar to -135 mbar]
Port Sizes:	Vacuum – 10-32 Female
Valve Type:	Plunger operated – air assisted servo controlled element
Operating Pressure:	20-115 PSI
Flow Rate:	2.5 SCFM @ 100 PSI
Cv Rating:	0.06
Response Time:	64 ms
Ambient Temp:	14ºF to 140ºF [-10C to 60C]
Mechanical Life:	10 million operations

Adjustable Mechanical Vacuum Switch

VS-4 & 5 Series, SX-4 & 5 Series, SX-4 & 5SB Series

Ideal Applications:

- Robotic applications
- Assembly applications
- Control applications
- Monitoring applications

Features/Benefits:

- Accurate and reliable repeatability – utilizes low stress deflecting contacts
- Compact and lightweight – operates in any position
- Economical – diaphragm operated – long life
- Easy to install – 12" flying leads, 24 AWG

Configurator, CAD Drawings, and On-line Store

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Vacuum Switches:

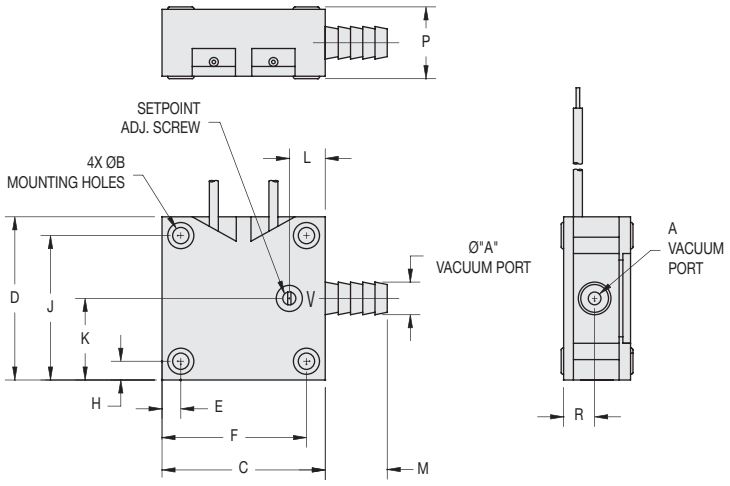
Vaccon vacuum switches are ideal in automated systems to generate a low current electrical signal for input to a PLC or other logic controllers. The adjustable switches are normally open, diaphragm operated, and contain low-stress deflecting contacts instead of sliding or pivoting parts for high reliability and long life.

Switch Options:

- Housings for ease of mounting on vacuum pumps
- Sub base for ease of installation on non-Vaccon vacuum pumps
- Spade connectors
- 2 vacuum level ranges: VS-4, SX-4, SX-4SB - 2"-14"Hg [68-474mbar] and VS-5, SX-5, SX-5SB - 7.4"-29.7"Hg [251mbar - 1 Bar]

Adjustable Mechanical Vacuum Switch: VS-4 & VS-5

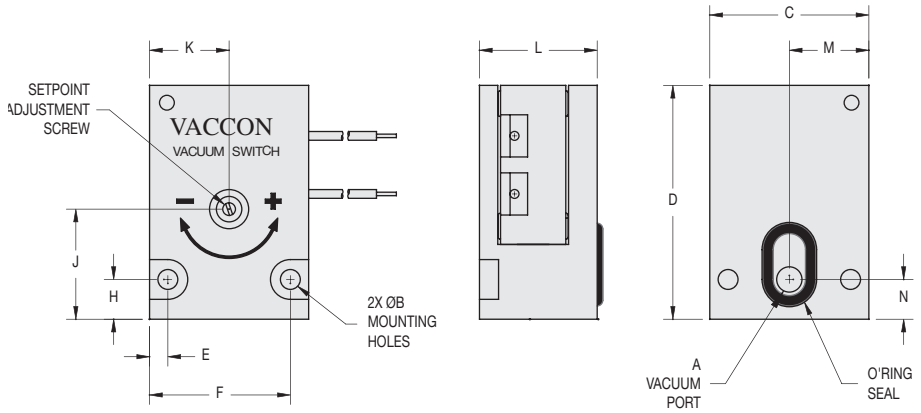
VS-5 shown



Model #		Dimensions															Weight	Lead Length
		A	B	C	D	E	F	H	J	K	L	M	N	P	R	S		
VS-4 or VS-5	in.	0.22	0.10	1.00	1.00	0.12	0.77	0.12	0.77	0.50	0.22	0.38	N/A	0.44	0.20	0.50	0.5 oz	12
	mm	0.22	2.5	25.4	25.4	3.0	19.6	3.0	19.6	12.7	5.6	9.7	N/A	11.2	5.1	12.7	14 g	305

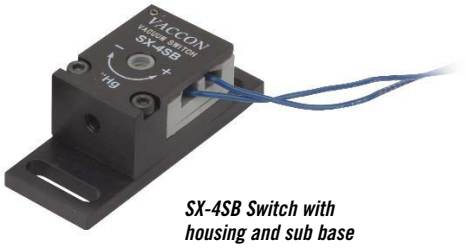
Adjustable Mechanical Vacuum Switch: SX-4 & SX-5 (Switch with housing)

SX-5 Switch with housing

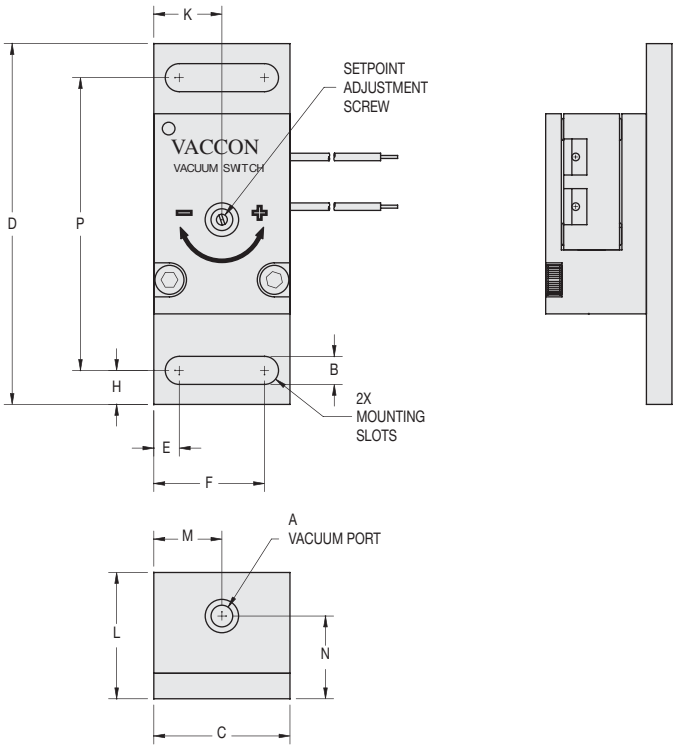


Model #		Dimensions												Weight	Lead Length
		A	B	C	D	E	F	H	J	K	L	M	N		
SX-4 or SX-5	in.	10-32 F	0.13	1.00	1.47	0.12	0.89	0.25	0.69	0.50	0.74	0.50	0.25	1.5 oz	12
	mm	10-32 F	3.3	25.4	37.3	3.0	22.6	6.4	17.5	12.7	18.8	12.7	6.4	43 g	305

Adjustable Mechanical Vacuum Switch: SX-4SB & SX-5SB (Switch with housing and sub base)

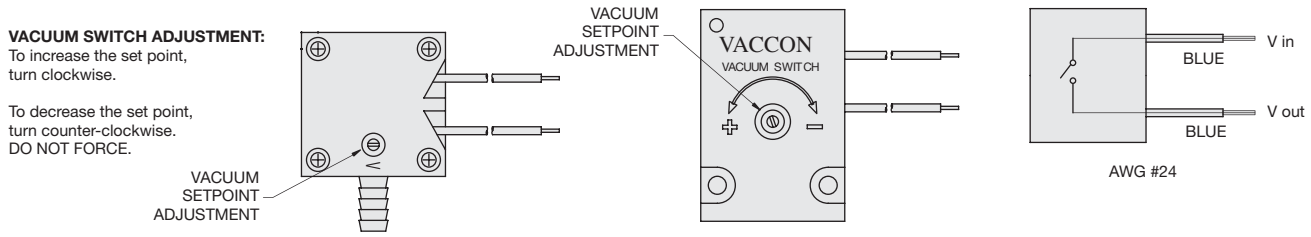


SX-4SB Switch with housing and sub base



Model #		Dimensions													Weight	Lead Length
		A	B	C	D	E	F	H	J	K	L	M	N	P		
SX4- SB or SX5-SB	in.	10-32 F	0.21	1.00	2.65	0.19	0.81	0.25	1.36	0.50	0.93	0.50	0.61	2.15	2.1 oz	12
	mm	10-32 F	5.3	25.4	67.3	4.8	20.6	6.4	34.5	12.7	23.6	12.7	15.5	54.6	60 g	305

Wiring Schematic for VS-4, VS-5, SX-4, SX-5, SX-4SB, SX-5SB



Important Notice For All VS-4, VS-5, SX-4, SX-5, SX-4SB, SX-5SB

1. The electrical current flows from one terminal through the rivet to the contact blade and from the other terminal through the rivet to the adjustment blade.
2. The adjustment screw is in contact with the diaphragm and is part of the electrical circuit.
3. To avoid potential shock, use an insulated screwdriver when making adjustments.

VS-4, VS-5, SX-4, SX-5, SX-4SB, SX-5SB Specifications:

Specifications	VS-4	VS-5	SX-4, SX-4SB	SX-5, SX-5SB
Rated Vacuum Range:	2" to 14.8" Hg [-68 to -500 mbar]	7.4" to 30" Hg [-250 to -1015 mbar]	2" to 14.8" Hg [-68 to -500 mbar]	7.4" to 30" Hg [-250 to -1015 mbar]
Proof Pressure:	N/A			
Burst Pressure:	25 PSI [1.7 bar]			
Media:	Non-Corrosive, Dry Gases			
Switch Type:	Differential Pressure, Mechanical Diaphragm			
Sensing/Switching Material:	Gold Plated, Phosphor Bronze			
Output:	SPST - NO			
Electrical Connection:	2 Wire - 24 AWG 1' [0.3M]			
Hysteresis:	0.5% Full Scale			
Max. Switch Voltage Load:	24 VDC/500 VAC			
Max. Switched Current Load:	20mA			
Display:	NONE			
Switch Indication:	NONE			
IP Protection:	NONE			
Operating Temperature:	-40ºF to 250ºF [-40ºC to 120ºC]			
Operating Humidity:	35 to 85% RH (No Condensation)			
Mechanical Life:	100,000,000 Cycles			
Construction:	GF Polyester/Polyurethane		GF Polyester/Polyurethane/Anodized Aluminum	
Fitting/Connection:	3/16" Barb		10-32 Female, Face Seal mount	
Weight:	0.5 oz [14g]		SX-4 & 5 – 1.5 oz [43g], SX-4 & 5SB – 2 oz [57g]	
Safety and Environmental Compliance:	RoHS			

How to Specify:

For switch only: Order by model number, i.e. **SX-5**

For factory-installed switch on Vaccon pump: Order Vaccon pump number and switch number, i.e., **VP20-150M-SX-4**.

For Spade switch: Order by model number with (-Spade) extension i.e. **VS-4-Spade**

Adjustable Mechanical Vacuum Switch

Compact, sealed vacuum switch for automation and process control applications

VSW5A Series

VSW5A – High amperage line voltage 120vAC

Ideal Applications:

- Hazardous applications
- Wash down applications
- Dust-laden air environment

Features/Benefits

- High amperage line voltage 120vAC
- Vacuum range 5" to 30"Hg [-170 to 1015mbar]
- Durable – Nema 6 Enclosure (IP67) protection for extremely dirty environments
- Flexible – field adjustable between vacuum ranges
- Easy to install – common electrical connection DIN 43650A
- Safe – UL and CSA Approved
- Versatile – can be wired for normally open or normally closed

Configurator, CAD Drawings, and On-line Store

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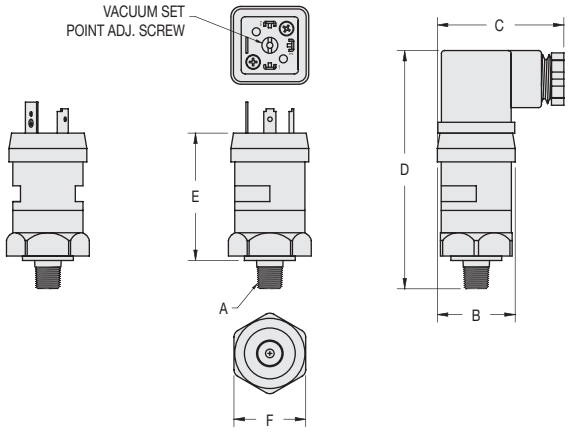
Vacuum Switches:

Vaccon's VSW5A is a high-current capacity switch capable of switching line voltage loads from 5 Amps to 125 VAC. The sealed vacuum switch is field adjustable from 5 to 28"Hg [169 to 948 mbar]. The vacuum level adjustment screw is easily accessed below the DIN connector. Wiring can be either normally open or normally closed.

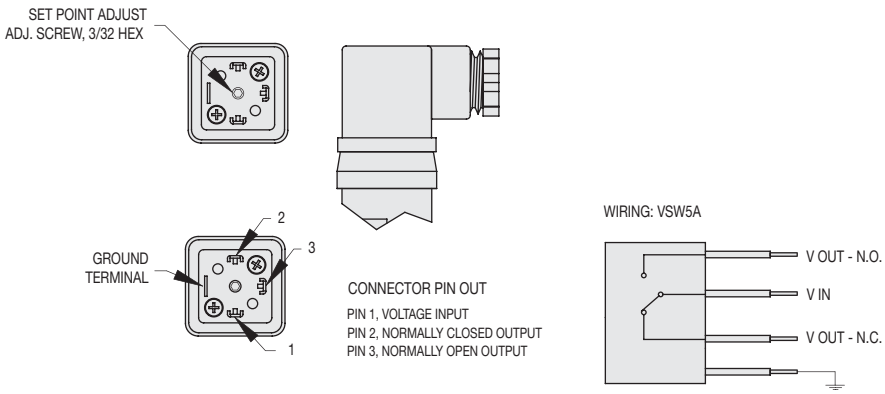
Adjustable Mechanical Vacuum Switch: VSW5A



Model #	Dimensions							Weight
		A	B	C	D	E	F	
VSW5A	in.	1/8 NPT M	1.22	1.98	3.74	2.00	1.13	4.1 oz
	mm	1/8 NPT M	31.0	50.3	95.0	50.8	28.7	116 g

Please Note: VSW5A replaces VSW5A-1 and VSW5A-2

Wiring Schematic for VSW5A: Set Point Adjustment



1. Remove center screw and DIN adaptor.
2. Place a 3/32" allen wrench into center hole.
3. Adjust counter-clockwise to increase set point, clockwise to decrease set point.
4. When desired setting is met, remove allen wrench and replace DIN adaptor and tighten screw.

VSW5A Specifications:

Rated Vacuum Range:	5" to 30" Hg [-170 to -1015 mbar]
Proof Pressure:	45 PSI [3.1 bar]
Burst Pressure:	350 PSI [24 bar]
Media:	Non-Corrosive, Dry Gases
Switch Type:	Nitrile Diaphragm
Sensing/Switching Material:	N/A
Output:	SPDT
Electrical Connection:	DIN 43650A
Hysteresis:	3" to 4" Hg [-102 mbar to -135 mbar]
Repeatability:	+/- 2% Full Scale
Max. Switched Voltage Load:	12/24 VDC, 125/250 VAC
Max. Switched Current Load:	5A for 12/24 VDC and 125 VAC, 3A - for 250 VAC
Display:	NONE
Switch Indication:	NONE
IP Protection:	IP65
Operating Temperature:	-20ºF to 180ºF [-28ºC to 82ºC]
Operating Humidity:	35 to 85% RH (No Condensation)
Mechanical Life:	100,000,000 Cycles
Construction:	Brass Housing, Nitrate Diaphragm
Fitting/Connection:	1/8" NPT Male
Weight:	4.0 oz. [113g]
Safety and Environmental Compliance:	UL, CSA, VDE and UR

How to Specify:

Order by part number: **VSW5A** (replaces VSW5A-1 and VSW5A-2)

Electronic Vacuum Switches

Ultra-miniature, precision control

VSM(N or P) Series

Configurator, CAD Drawings, and On-line Store

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Above: VSMP switch on VP00-60H
Right: VSMP switch only

Vaccon's miniature electronic vacuum switches provide a switched output for part present detection and can be easily mounted to Vaccon's Mini, Mid and MP Series pumps.

Ideal Applications:

- Part present detection
- End-of-Arm Tooling/Robotic assembly
- Material handling
- Pick and place
- Manifold mount

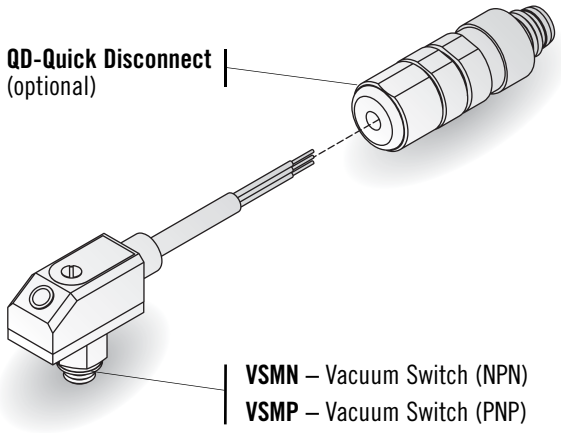
Features/Benefits

- Compact – placed at point of use for accurate reading and quick response time
- Lightweight – ideal for End-of-Arm Tooling, robotic end effectors
- Precision Control – offers field-adjustable set-point for the full vacuum range
- Reliable LED for visual confirmation – easy set-up
- Swivel fitting – operates in any position
- Mountable to both Vaccon or any non-Vaccon M5 vacuum port
- Low power consumption
- RoHS compliant and meets EMC standards

Switch Options:

- Choice of output – NPN, PNP
- Electrical Quick Disconnects

VSM(N or P) Switch Configurations and Options:



How to Specify:

Part Number	Switch
VSMN	Switch – NPN
VSMP	Switch – PNP
VSMN-QD	Switch w/Quick Disconnect
VSMP-QD	Switch w/Quick Disconnect

On-line Configurator and CAD Drawings @ www.vaccon.com

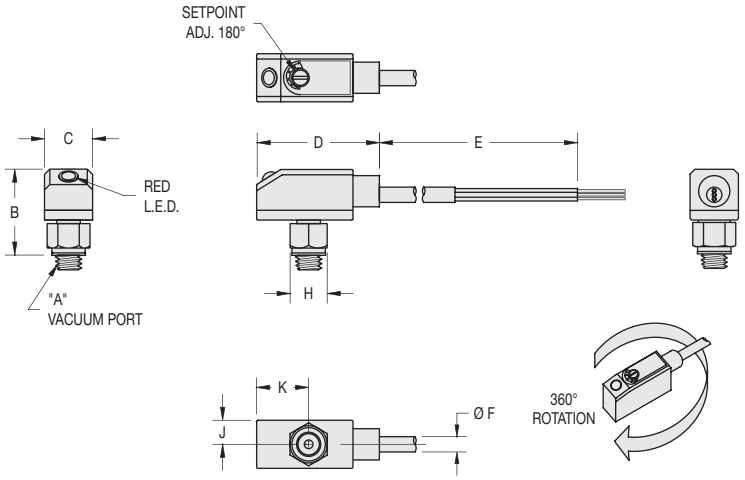
New powerful design tool saves you time by configuring the pump you need on-line.

When complete, simply download the CAD drawing in any one of 13 different CAD formats and insert it right into your design.

Get the pump you need, in the format you like!

Standard Switch: VSM (N or P)

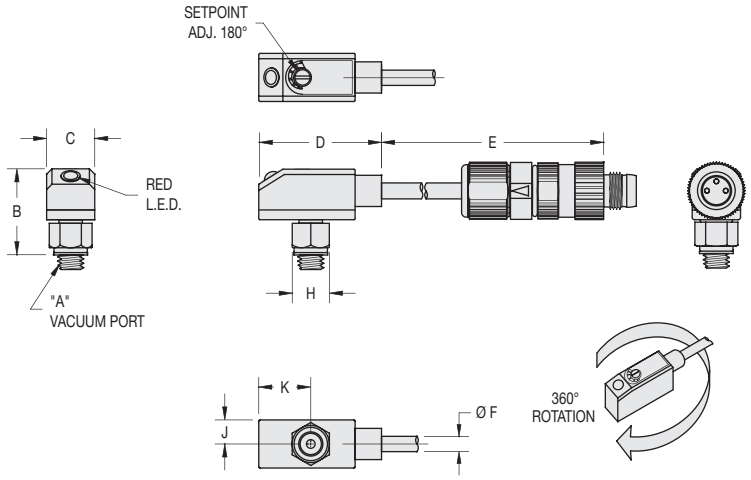
VSMN/VSMP



Model #		Dimensions									Weight
		A	B	C	D	E	F	H	J	K	
VSM (N, P)	in.	M5	0.71	0.39	1.01	57.80	0.13	0.30	0.20	0.43	1.0 oz
	mm	M5	18.0	9.9	25.7	1468.1	3.3	7.6	5.1	10.9	28 g

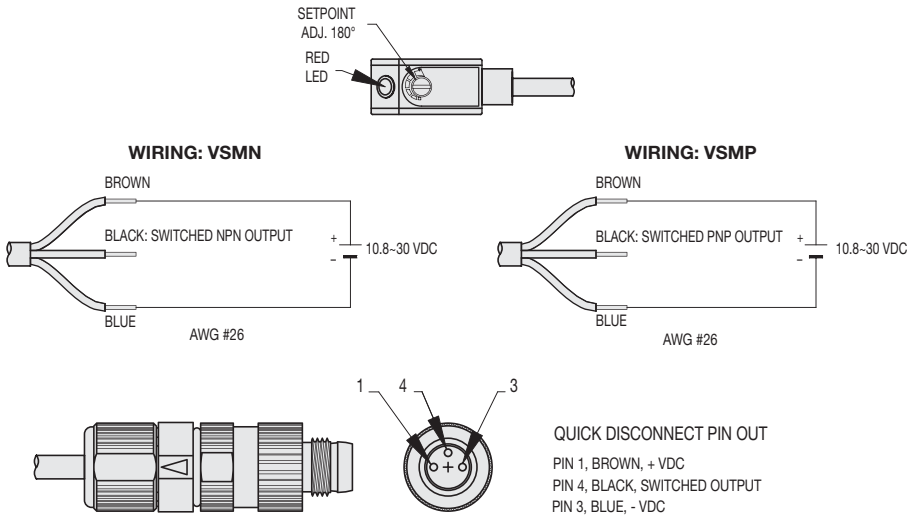
Switch with Quick Disconnect: VSM (N or P)-QD

VSM (N or P)-QD



Model #		Dimensions									Weight
		A	B	C	D	E	F	H	J	K	
VSM (N, P)-QD	in.	M5	0.71	0.39	1.01	57.80	0.13	0.30	0.20	0.43	1.6 oz
	mm	M5	18.0	9.9	25.7	1468.1	3.3	7.6	5.1	10.9	45 g

Wiring Schematic for VSM (N or P)



VSM (N or P) Electronic Vacuum Switch Specifications:

	VSMN	VSMP
Rated Vacuum Range:	0" to 30" Hg [-0 to -1015 mbar]	
Burst Pressure:	29 PSI [2 bar]	
Media:	Non-Corrosive, Dry Gases	
Supply Voltage:	10.8 to 30 VDC	
Current Consumption:	20 mA Max.	
Sensing/Switching Material:	Single Crystal Silicon	
Output:	Switched - NPN	Switched - PNP
Electrical Connection:	3 Wire - 26 AWG - 5' (1.5m), Optional 3 pin, M8 Quick Disconnect	
Hysteresis:	2% Full Scale Max	
Repeatability:	+/- 0.3% Full Scale	
Response Time:	1 ms Max.	
Circuit Protection:	NONE	
Max. Switch Voltage Load:	30 VDC	
Max. Switched Current Load:	80mA	
Linearity:	+/- 0.5% Full Scale	
Thermal Error:	+/- 2% Full Scale/121ºF (50ºC)	
Thermal Compensation:	32ºF to 121ºF (0ºC to 50ºC)	
Display:	Single Red LED	
Switch Indication:	Red LED ON (Switched Output ON)	
IP Protection:	IP00	
Operating Temperature:	15ºF to 140ºF (-10ºC to 60ºC)	
Operating Humidity:	35 to 85% RH (No Condensation)	
Construction:	Glass filed ABS/Aluminum/Buna	
Fitting/Connection:	M5x.8 - 360º swivel male fitting	
Weight:	1 oz (28.3g)	
Safety and Environmental Compliance:	CE, RoHS	

Solid State Vacuum Switches

Miniature, precision control

VSX(L, N, P) Series

Switches, shown with optional adapters and quick disconnect

Vaccon's miniature solid state vacuum switches provide a switched output and can be easily mounted to Vaccon's Mid Series vacuum pumps at the factory or field installed.

Note: Both the set-point and hysteresis are adjustable and include an LED indicator.

Ideal Applications:

- Part present detection
- Pick and place
- End-of-Arm tooling/Robotic assembly
- Material handling
- Process control
- Manifold mount

Features/Benefits

- Compact – placed at point of use for accurate reading and quick response time
- Lightweight – ideal for End-of-Arm Tooling, robotic end effectors
- Independent hysteresis adjustment – to meet application requirements
- Precision Control – offers field-adjustable set-point for the full vacuum range
- Reliable LED for visual confirmation – easy set-up
- Mountable to both Vaccon and non-Vaccon vacuum pumps
- RoHS compliant and meets EMC standards

Vacuum Switch Options:

- Choice of output – L, NPN, and PNP Series
- Remote mount
- Male port adapters 10-32 or 1/8" NPT
- 10' [3m] leads
- Electrical quick disconnects

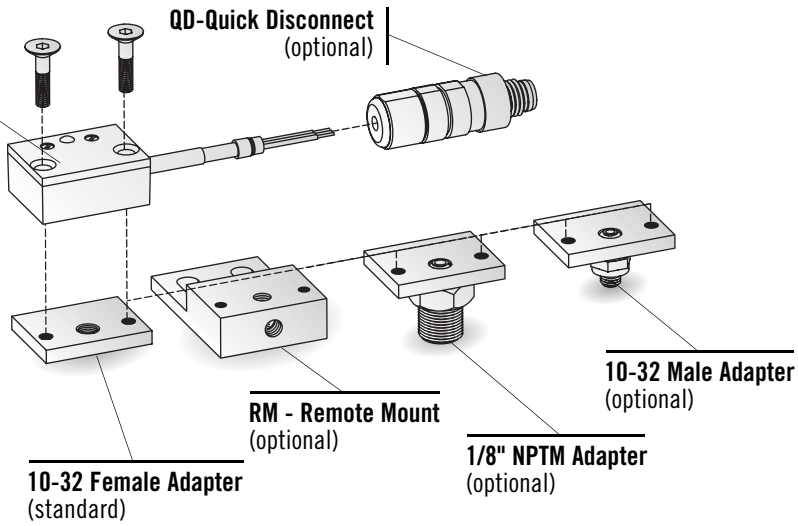
VSXL: Designed for use in low voltage circuits that require a digital output signal. The VSXL will output a high voltage when sensing vacuum levels lower than the set point, and a low voltage when sensing vacuum levels higher than the set point. A 2.2K ohm resistor is used as the high voltage pull up resistor.

VSXN: Designed for use in low voltage, ground side switched circuits typical of those found in PLC based applications.

VSXP: Designed for use in low voltage, high side switched circuits typical of those found in PLC based applications.

VSX (L, N, P) Switch Configurations and Options:

Vacuum Switches
VSXL – Sinking with pull-up resistor
VSXN – Sinking (NPN)
VSXP – Sourcing (PNP)



How to Specify:

VSXN - RM - QD

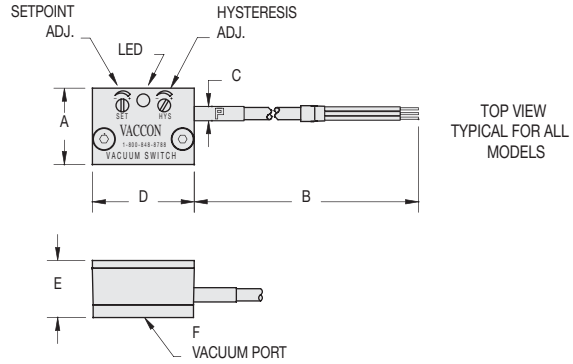
P/N	Vacuum Switch
VSXL	Adj. Mini Vacuum Switch – Sinking with Pull-up Resistor
VSXN	Adj. Mini Vacuum Switch – NPN
VSXP	Adj. Mini Vacuum Switch – PNP

P/N	Switch
QD	Quick Disconnect

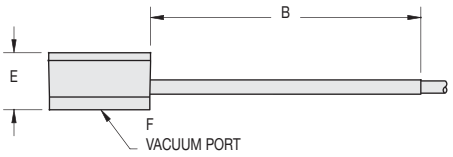
P/N	Adapter Options
	10-32 Female Adapter (Std)
RM	Remote Mount
32	10-32 Male Adapter
18	1/8" NPTM Adapter
10	10' [3m] Leads

Solid State Vacuum Switch: VSX (L, N, P)

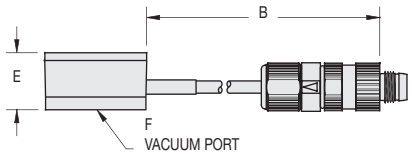
Standard VSXL (N, P)



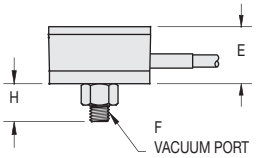
VSX (L, N, P)



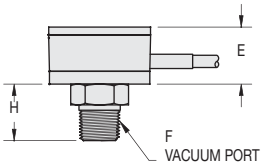
VSX (L, N, P)-10 FRONT VIEW



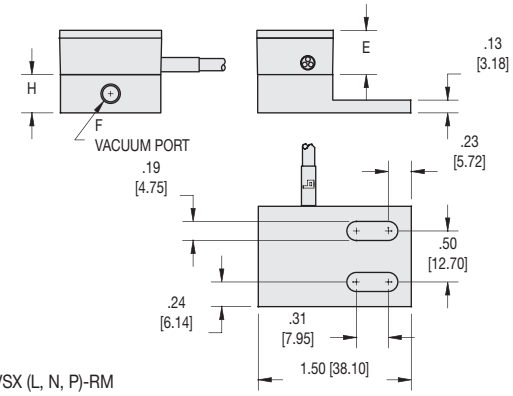
VSX (L, N, P)-QD FRONT VIEW



VSX (L, N, P)-32 FRONT VIEW



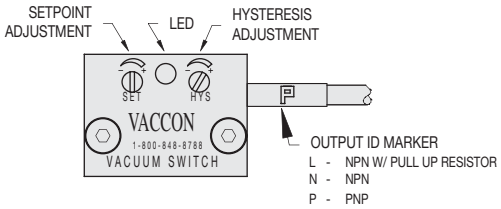
VSX (L, N, P)-18 FRONT VIEW

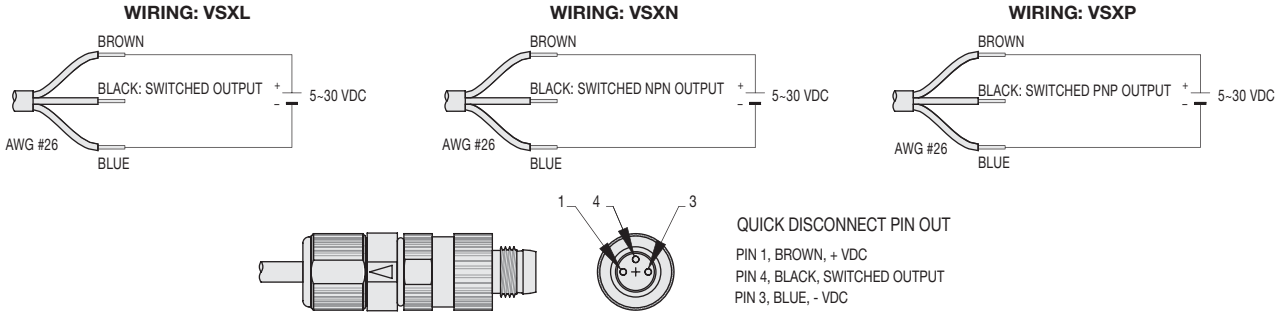


VSX (L, N, P)-RM

Model #	Dimensions	A	B	C	D	E	F	H	Weight
VSX (L, N, P)	in.	0.75 [19.1]	24.00 [609.6]	0.12 [3.0]	1.00 [25.4]	0.56 [14.2]	10-32 F	N/A	0.6 oz [17g]
	mm								
VSX (L, N, P)-10	in.		120.00 [3084.0]						1.5 oz [43g]
	mm								
VSX (L, N, P)-32	in.		24.00 [609.6]				10-32 M	0.46 [11.7]	0.7 oz [20g]
	mm								
VSX (L, N, P)-18	in.						1/8 NPT M	0.55 [14.0]	1.0 oz [28g]
	mm								
VSX (L, N, P)-QD	in.						10-32 F	N/A	1.2 oz [34g]
	mm								
VSX (L, N, P)-RM	in.					0.44 [11.2]		0.37 [9.4]	1.1 oz [31g]
	mm								

Wiring Schematic for VSX (L, N, P)





VSX (L, N, P) Specifications:

	VSXL	VSXN	VSXP
Rated Vacuum Range:	0.5" to 30" Hg [-34 mbar to -1015 mbar]		
Proof Pressure:	45 PSI [3.1 bar]		
Burst Pressure:	75 PSI [5.2 bar]		
Media:	Non-Corrosive, Dry Gases		
Supply Voltage:	5 to 30 VDC		
Current Consumption:	20 mA Max.		
Sensing/Switching Material:	Single Crystal Silicon		
Output:	Switched - Sinking w/Pull-up	Switched - Sinking (NPN)	Switched - Sourcing (PNP)
Electrical Connection:	3 Wire - 26 AWG - 2' (.6m), Optional 3 pin, M8 Quick Disconnect		
Hysteresis:	Adjustable – 0-15%Full Scale		
Response Time:	2 ms		
Circuit Protection:	NONE		
Max. Switch Voltage Load:	N/A	24 VDC	24 VDC
Max. Switched Current Load:	N/A	100 mA	100 mA
Linearity:	+/- 0.5% Full Scale		
Thermal Error:	+/- 7% Full Scale / 212ºF Max. (100ºC)		
Thermal Compensation:	NONE		
Display:	Single Red LED		
Switch Indication:	Red LED ON (Switched Output ON)		
IP Protection:	IP00		
Operating Temperature:	-40ºF to 150ºF [-40ºC to 65ºC]		
Operating Humidity:	35 to 85% RH (No Condensation)		
Mechanical Life:	100,000,000 Cycles		
Construction:	Glass filed ABS/Aluminum/Buna		
Fitting/Connection:	10-32 Female Standard, Optional 10-32 Male, 1/8' NPT Male, Face Seal Mount		
Weight:	0.6 oz [17g]		
Safety and Environmental Compliance:	RoHS		

Solid State Pressure Switches

Miniature, precision control

PSX(L, N, P) Series

Switches shown with optional adapters and quick disconnect

Vaccon's miniature electronic pressure switching devices interface from pressure to electrical control circuits providing precision control for feedback mechanisms or system monitoring.

Note: Both the set-point and hysteresis are adjustable and include an LED indicator.

Ideal Applications:

- Monitoring compressed air supply pressure
- Process control
- Leak testing

Features/Benefits

- Compact – placed at point of use for accurate reading and quick response time
- Lightweight – 1 oz [28.35g]
- Independent hysteresis adjustment – to meet application requirements
- Precision Control – offers field-adjustable set-point for the full vacuum range
- Reliable LED for visual confirmation – easy set-up
- RoHS compliant and meets EMC standards

Pressure Switch Options:

- Choice of output – L, NPN, and PNP Series
- Remote mount
- Male port adapters 10-32 or 1/8" NPT
- 10' [3m] leads
- Electrical quick disconnects

PSXL: Designed for use in low voltage circuits that require a digital output signal. The PSXL will output a high voltage when sensing vacuum levels lower than the set point, and a low voltage when sensing vacuum levels higher than the set point. A 2.2K ohm resistor is used as the high voltage pull-up resistor.

PSXN: Designed for use in low voltage, ground side switched circuits typical of those found in PLC based applications.

PSXP: Designed for use in low voltage, high side switched circuits typical of those found in PLC based applications.

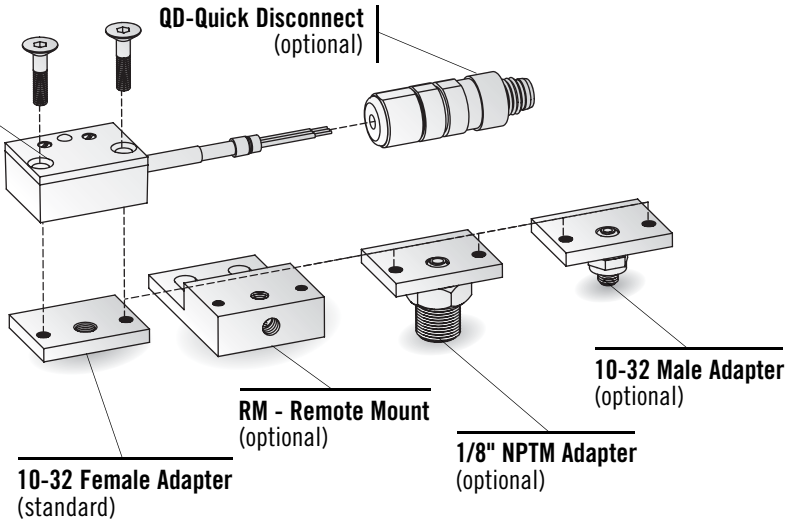
PSX (L, N, P) Switch Configurations and Options:

Vacuum Switches

PSXL – Sinking with pull-up resistor

PSXN – Sinking (NPN)

PSXP – Sourcing (PNP)



How to Specify:

PSXN - RM - QD

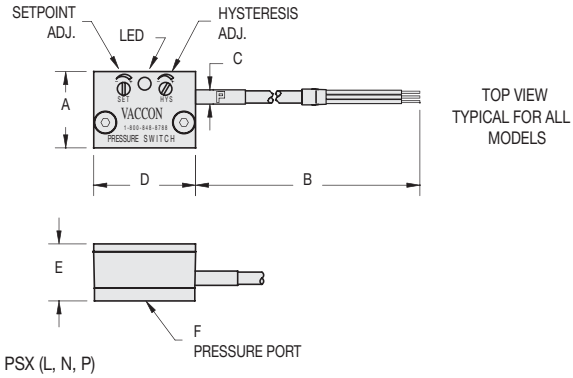
P/N	Pressure Switch
PSXL	Adj. Mini Vacuum Switch – Sinking with Pull-up Resistor
PSXN	Adj. Mini Vacuum Switch – NPN
PSXP	Adj. Mini Vacuum Switch – PNP

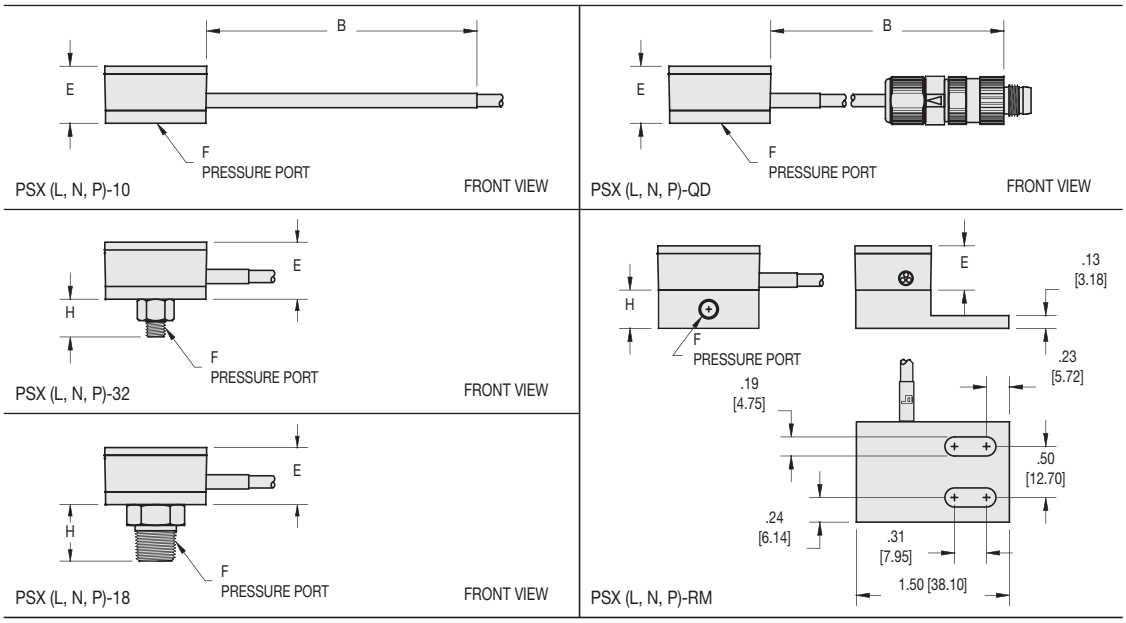
P/N	Switch
QD	Quick Disconnect

P/N	Adapter Options
	10-32 Female Adapter (Std)
RM	Remote Mount
32	10-32 Male Adapter
18	1/8" NPTM Adapter
10	10' [3m] Leads

Solid State Pressure Switch: PSX (L, N, P)

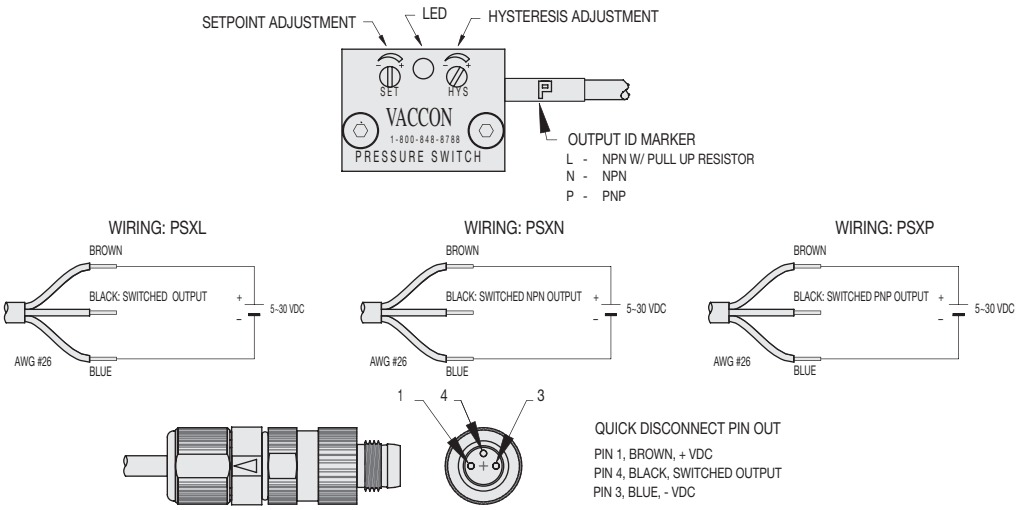
Standard PSXL (N, P)





Model #	Dimensions	A	B	C	D	E	F	H	Weight
PSX (L, N, P)	in.	0.75 [19.1]	24.00 [609.6]	0.12 [3.0]	1.00 [25.4]	0.56 [14.2]	10-32 F	N/A	0.6 oz [17g]
	mm								
PSX (L, N, P)-10	in.		120.00 [3084.0]						1.5 oz [43g]
	mm								
PSX (L, N, P)-32	in.		24.00 [609.6]				10-32 M	0.46 [11.7]	0.7 oz [20g]
	mm								
PSX (L, N, P)-18	in.						1/8 NPT M	0.55 [14.0]	1.0 oz [28g]
	mm								
PSX (L, N, P)-QD	in.						10-32 F	N/A	1.2 oz [34g]
	mm								
PSX (L, N, P)-RM	in.					0.44 [11.2]		0.37 [9.4]	1.1 oz [31g]
	mm								

Wiring Schematic for PSX (L, N, P)



PSX (L, N, P) Specifications:

	PSXL	PSXN	PSXP
Rated Pressure Range:	10 PSI to 150 PSI [0.7 bar to 10.3 bar]		
Proof Pressure:	300 PSI [20.7 bar]		
Burst Pressure:	500 PSI [34.5 bar]		
Media:	Non-Corrosive, Dry Gases		
Supply Voltage:	5 to 30 VDC		
Current Consumption:	20 mA Max.		
Sensing/Switching Material:	Single Crystal Silicon		
Output:	Switched - Sinking w/Pull-up	Switched - Sinking (NPN)	Switched - Sourcing (PNP)
Electrical Connection:	3 Wire - 26 AWG - 2' (.6m), Optional 3 pin, M8 Quick Disconnect		
Hysteresis:	Adjustable – 0-15%Full Scale		
Response Time:	2 ms		
Circuit Protection:	NONE		
Max. Switch Voltage Load:	N/A	24 VDC	24 VDC
Max. Switched Current Load:	N/A	100 mA	100 mA
Linearity:	+/- 0.5% Full Scale		
Thermal Error:	+/- 7% Full Scale/212ºF Max. [100ºC]		
Thermal Compensation:	NONE		
Display:	Single Red LED		
Switch Indication:	Red LED ON (Switched Output ON)		
IP Protection:	IP00		
Operating Temperature:	-40ºF to 150ºF [-40ºC to 65ºC]		
Operating Humidity:	35 to 85% RH (No Condensation)		
Mechanical Life:	100,000,000 Cycles		
Construction:	Glass filed ABS/Aluminum/Buna		
Fitting/Connection:	10-32 Female Standard, Optional 10-32 Male, 1/8" NPT Male, Face Seal Mount		
Weight:	0.6 oz [17g]		
Safety and Environmental Compliance:	RoHS		

Solid State Vacuum Switch and Sensor with Digital Display

VDS-1000

Ideal Applications:

- Robotic control
- Pick and place
- Part present detection
- Material handling
- Monitoring vacuum
- Leak testing

Features/Benefits:

- Fully Programmable – simple push button calibration – no tools required
- Operating range includes both vacuum and pressure
- Full 3 digit display – red LED
- Analog output 1-5 VDC in addition to two switch outputs
- Globally accepted display scales: "Hg, mmHg, PSI, bar, mbar, gf/cm sq, kgf/cm sq, kPa
- Dust and drip proof enclosure to IP65 IEC standards
- Solid state dependability
- 2 ports – back and bottom for easy plumbing and design flexibility
- RoHS compliant

The VDS-1000 compact all-in-one output device and digital gauge reduces the number of components in your system. With two switch outputs and one analog output, it's possible to monitor the high and low limits for vacuum control and system conditions. In pick and place and robotic material handling applications use the first switch to detect part present and the second switch to signal the robot or tool that the working vacuum level has been achieved and it is safe for the tool to move.

The analog output allows software control over the entire vacuum and pressure range with the ability to track system vacuum/pressure changes in real time. The switches are highly flexible due to selectable output functions such as switching point hysteresis and window comparator.

Vacuum switch reads both vacuum and pressure, see specifications on page 306 for the operating ranges. Choose the VDS-1000-L for accurately detecting small changes in vacuum and pressure between the range of -3 PSI [-0.2 Bar] vacuum to + 3 PSI [0.2 Bar] pressure.

Switch Options:

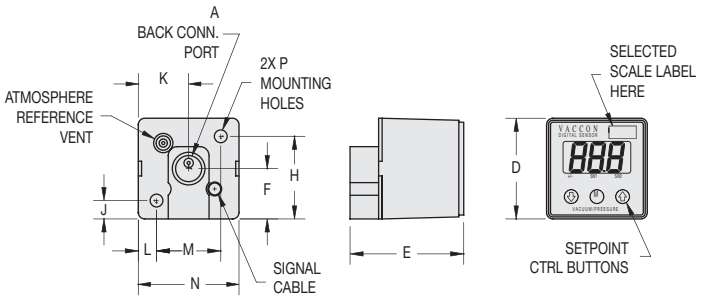
- 3 Mounting brackets – rear mount, bottom mount, panel mount
- Electrical quick disconnects
- 3 Output types – VDS-1000 (PNP) or VDS-1000-N (NPN), VDS-1000-L

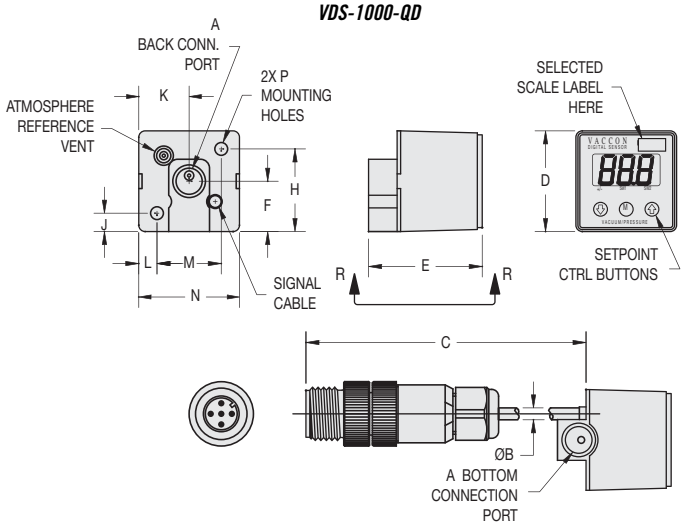
How to Specify:

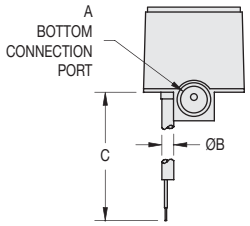
- **Sensor only:** part number, i.e., **VDS-1000** (PNP), **VDS-1000-N** (NPN), **VDS-1000-L**
- **Bracket only:** part number, i.e., **-RMB** (rear mount bracket) **-BMB** (bottom mount bracket), **-PMB** (panel mount bracket)
- **Sensor & Bracket:** part number i.e., **VDS-1000-RMB**
- **Sensor with Quick Disconnect:** part number i.e., **VDS-1000-QD**

Standard VDS-1000 Digital Switch/Sensor

VDS-1000-QD



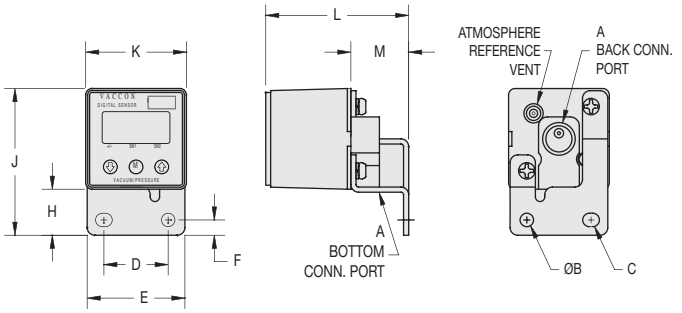




Quick Disconnect

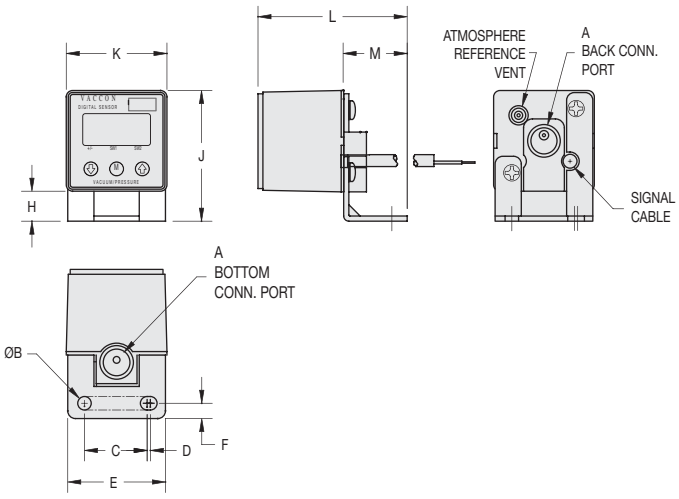
Model #		Dimensions														Weight
		A	B	C	D	E	F	H	J	K	L	M	N	P	
VDS-1000 (L) (N)	in.	1/8 NPT F (2X)	0.15	77.62	1.23	1.39	0.62	1.02	0.23	0.62	0.22	0.79	1.23	M3 x 0.5	3.2 oz
	mm		3.8	1971.5	31.2	35.3	15.7	25.9	5.8	15.7	5.6	20.1	0.00	M3 x 0.5	91 g
VDS-1000 (L) (N) QD	in.	1/8 NPT F (2X)	0.15	75.60	1.23	1.39	0.62	1.02	0.23	0.62	0.22	0.79	1.23	M3 x 0.5	4.3 oz
	mm		3.8	1920.5	31.2	35.3	15.7	25.9	5.8	15.7	5.6	20.1	0.00	M3 x 0.5	122 g

Optional Mounting Brackets: Rear Mount Bracket – RMB



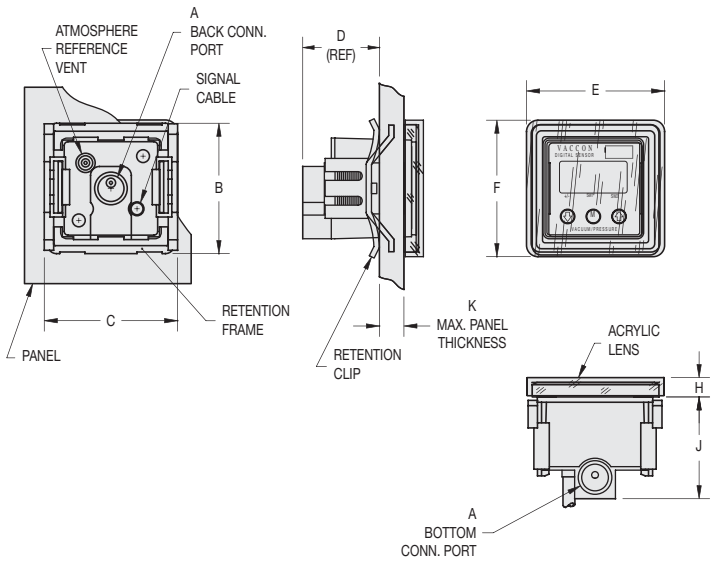
Model #		Dimensions											Weight
		A	B	C	D	E	F	H	J	K	L	M	
VDS-1000 (L) (N) - RMB	in.	1/8 NPT F (2X)	0.17	0.17 x 0.20	0.79	1.20	0.19	0.56	1.80	1.23	1.75	0.71	3.6 oz
	mm		4.3	4.3 x 5.1	20.1	30.5	4.8	14.2	45.7	31.2	44.5	18.0	102 g

Optional Mounting Brackets: Bottom Mount Bracket – BMB



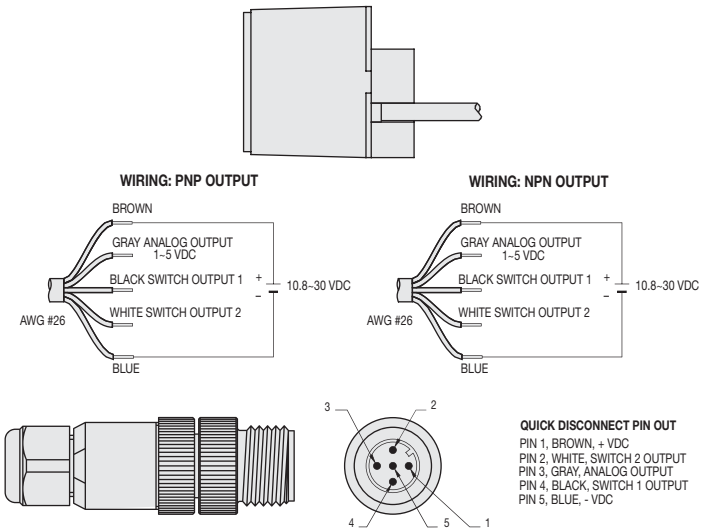
Model #	Dimensions												Weight
		A	B	C	D	E	F	H	J	K	L	M	
VDS-1000 (L) (N) - BMB	in.	1/8 NPT F (2X)	0.17	0.17 x 0.20	0.29	1.20	0.19	0.37	1.60	1.23	1.82	0.78	3.6 oz
	mm		4.3	4.3 x 5.1	7.4	30.5	4.8	9.4	40.6	31.2	46.2	19.8	102 g

Optional Mounting Brackets: Panel Mount Bracket – PMB



Model #	Dimensions										Weight
		A	B	C	D	E	F	H	J	K	
VDS-1000 (L) (N) - PMB	in.	1/8 NPT F (2X)	1.60	1.63	1.09	1.69	1.67	0.24	1.25	0.15	3.6 oz
	mm		40.6	41.4	27.7	42.9	42.4	6.1	31.8	3.8	102 g

Wiring Schematic for VDS-1000



VDS-1000 Specifications:

	VDS-1000	VDS-1000-N	VDS-1000-L
Rated Vacuum Range:	-14.5 to 14.5 PSI [-982 mbar to 1 BAR]		-1.5 to 1.5 PSI [-101.5 mbar to 0.10 BAR]
Proof Pressure:	29 PSI [2 BAR]		2.9 PSI [0.20 BAR]
Burst Pressure:	72.5 PSI [5 BAR]		7.25 PSI [0.50 BAR]
Media:	Non-Corrosive, Dry Gases		
Supply Voltage:	10.8 to 30 VDC		
Current Consumption:	70 mA Max.		
Switch Type:	Transistor Open Collector		
Sensing/Switching Material:	Single Crystal Silicon		
Output:	(2) PNP Switched, (1) 1-5 VDC Analog	(2) NPN Switched, (1) 1-5 VDC Analog	(2) PNP Switched, (1) 1-5 VDC Analog
Electrical Connection:	5 Wire - 26 AWG - 7' (2M), Optional 5 pin, M12 Quick Disconnect		
Hysteresis:	Adjustable – 0 to 300 Digit		
Repeatability:	+/- 0.2% Full Scale, 1 Digit		
Response Time:	5 ms Max.		
Circuit Protection:	Exists		
Max. Switch Voltage Load:	30 VDC		
Max. Switched Current Load:	100mA		
Thermal Error:	+/- 3% Full Scale/121ºF [50ºC]		
Thermal Compensation:	None		
Display:	Full 3 Digit LED (sampling rate: 4/sec)		
Switch Indication:	SW1-Green LED ON (Switched Output ON) SW2-Red LED ON (Switched Output ON)		
IP Protection:	IP65		
Operating Temperature:	15ºF to 125ºF [-10ºC to 52ºC]		
Operating Humidity:	35 to 85% RH (No Condensation)		
Construction:	ABS/Aluminum Die-Cast/Buna		
Fitting/Connection:	2-1/8" NPT Female, Back and Bottom		
Weight:	3.7 oz [105g]		
Safety and Environmental Compliance:	CE, RoHS		

Solid State Pressure Switch and Sensor with Digital Display

PDS-1110 Series

Ideal Applications:

- Material handling
- Process control
- Leak testing
- Monitoring

Features/Benefits

- Fully Programmable – simple push button calibration – no tools required
- Operating range includes both vacuum and pressure
- Full 3 digit display – red LED
- Analog output 1-5 VDC and two switch outputs
- Globally accepted display scales: "Hg, mmHg, PSI, bar, mbar, gf/cm sq, kgf/cm sq, kPa
- Dust and drip proof enclosure to IP65 IEC standards
- Solid state dependability
- 2 ports – back and bottom for easy plumbing and design flexibility
- RoHS compliant

The PDS-1110 compact all-in-one output device and digital gauge reduces the number of components in your system. With two switch outputs and one analog output, it's possible to monitor the high and low limits for pressure control and system conditions.

The analog output allows software control over the entire vacuum and pressure range with the ability to track system vacuum/pressure changes in real time. The switches are highly flexible due to selectable output functions such as switching point hysteresis and window comparator.

This ia a compound switch device that operates from full vacuum to full pressure, see specifications on page 310 for the operating ranges.

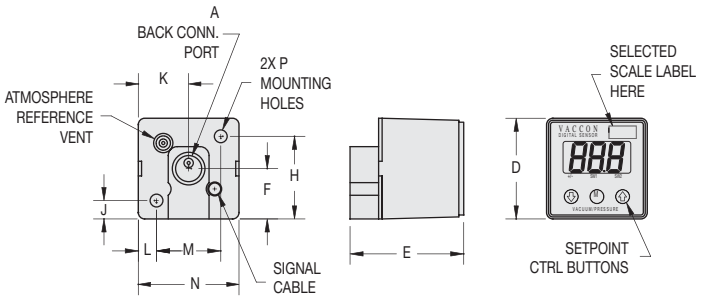
Switch Options:

- 3 Mounting brackets – rear mount, bottom mount, panel mount
- Electrical quick disconnects
- 2 Output types – PDS-1110 (PNP) or PDS-1110-N (NPN)

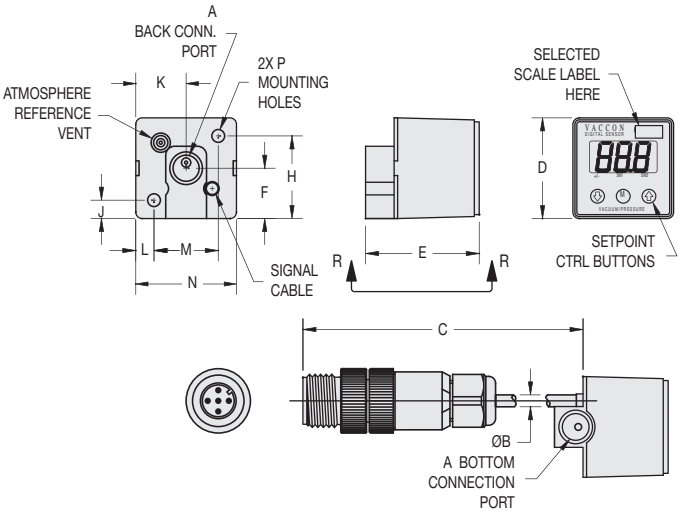
How to Specify:

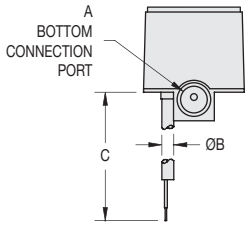
- **Sensor only:** part number, i.e., **PDS-1110** (PNP), **PDS-1110-N** (NPN)
- **Bracket only:** part number, i.e., **-RMB** (rear mount bracket) **-BMB** (bottom mount bracket), **-PMB** (panel mount bracket)
- **Sensor & Bracket:** part number i.e., **PDS-1110-RMB**
- **Sensor with Quick Disconnect:** part number i.e., **PDS-1110-QD**

Standard PDS-1110 Digital Switch/Sensor



PDS-1110-QD

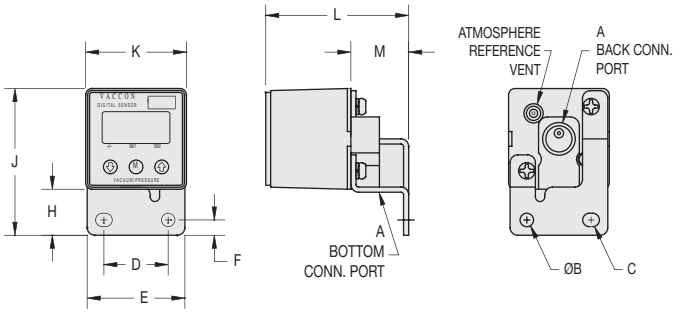




Quick Disconnect

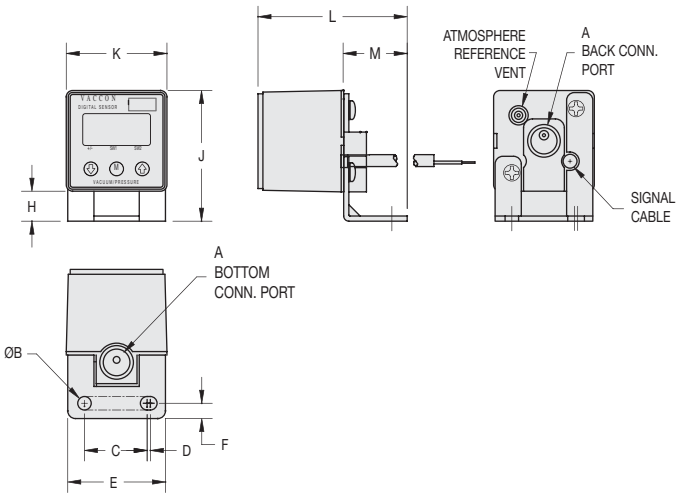
Model #		Dimensions														Weight
		A	B	C	D	E	F	H	J	K	L	M	N	P	
PDS-1110 (N)	in.	1/8 NPT F (2X)	0.15	77.62	1.23	1.39	0.62	1.02	0.23	0.62	0.22	0.79	1.23	M3 x 0.5	3.2 oz
	mm		3.8	1971.5	31.2	35.3	15.7	25.9	5.8	15.7	5.6	20.1	0.00	M3 x 0.5	91 g
PDS-1110 (N)-QD	in.	1/8 NPT F (2X)	0.15	75.60	1.23	1.39	0.62	1.02	0.23	0.62	0.22	0.79	1.23	M3 x 0.5	4.3 oz
	mm		3.8	1920.5	31.2	35.3	15.7	25.9	5.8	15.7	5.6	20.1	0.00	M3 x 0.5	122 g

Optional Mounting Brackets: Rear Mount Bracket – RMB



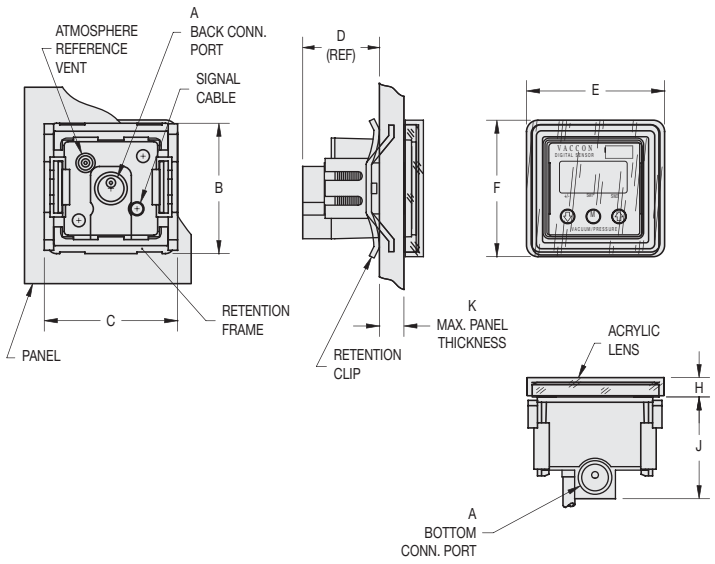
Model #		Dimensions											Weight
		A	B	C	D	E	F	H	J	K	L	M	
PDS-1110 (N) - RMB	in.	1/8 NPT F (2X)	0.17	0.17 x 0.20	0.79	1.20	0.19	0.56	1.80	1.23	1.75	0.71	3.6 oz
	mm		4.3	4.3 x 5.1	20.1	30.5	4.8	14.2	45.7	31.2	44.5	18.0	102 g

Optional Mounting Brackets: Bottom Mount Bracket – BMB



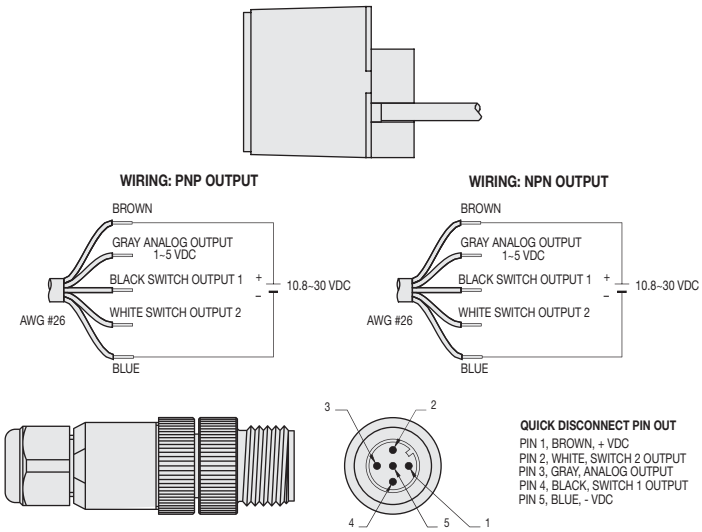
Model #	Dimensions												Weight
		A	B	C	D	E	F	H	J	K	L	M	
PDS-1110 (N) - BMB	in.	1/8 NPT F	0.17	0.17 x 0.20	0.29	1.20	0.19	0.37	1.60	1.23	1.82	0.78	3.6 oz
	mm	(2X)	4.3	4.3 x 5.1	7.4	30.5	4.8	9.4	40.6	31.2	46.2	19.8	102 g

Optional Mounting Brackets: Panel Mount Bracket – PMB



Model #	Dimensions										Weight
		A	B	C	D	E	F	H	J	K	
PDS-1110 (N) - PMB	in.	1/8 NPT F	1.60	1.63	1.09	1.69	1.67	0.24	1.25	0.15	3.6 oz
	mm	(2X)	40.6	41.4	27.7	42.9	42.4	6.1	31.8	3.8	102 g

Wiring Schematic for PDS-1110



PDS-1110 Specifications:

	PDS-1110	PDS-1110-N
Rated Pressure Range:	-14.5 to 145 PSI [-101.5 mbar to 10 bar]	
Proof Pressure:	217 PSI [15 bar]	
Burst Pressure:	290 PSI [20 bar]	
Media:	Non-Corrosive, Dry Gases	
Supply Voltage:	10.8 to 30 VDC	
Current Consumption:	70 mA Max.	
Switch Type:	Transistor Open Collector	
Sensing/Switching Material:	Single Crystal Silicon	
Output:	(2) PNP Switched, (1) 1-5 VDC Analog	(2) NPN Switched, (1) 1-5 VDC Analog
Electrical Connection:	5 Wire - 26 AWG - 7' (2M), Optional 5 pin, M12 Quick Disconnect	
Hysteresis:	Adjustable – 0 to 300 Digit	
Repeatability:	+/- 0.2% Full Scale, 1 Digit	
Response Time:	5 ms Max.	
Circuit Protection:	Exists	
Max. Switch Voltage Load:	30 VDC	
Max. Switched Current Load:	100mA	
Thermal Error:	+/- 3% Full Scale/121ºF [50ºC]	
Thermal Compensation:	None	
Display:	Full 3 Digit LED (sampling rate: 4/sec)	
Switch Indication:	SW1-Green LED ON (Switched Output ON) SW2-Red LED ON (Switched Output ON)	
IP Protection:	IP65	
Operating Temperature:	15ºF to 125ºF [-10ºC to 52ºC]	
Operating Humidity:	35 to 85% RH (No Condensation)	
Construction:	ABS/Aluminum Die-Cast/Buna	
Fitting/Connection:	2-1/8" NPT Female, Back and Bottom	
Net Weight:	3.7 oz [105g]	
Safety and Environmental Compliance:	CE, RoHS	

Electronic Vacuum Sensor

Ultra-miniature, precision control

VTMV Series

VTMV-QD

Ideal Applications:

- Part present detection
- End-of-Arm Tooling/Robotic assembly
- Material handling
- Monitoring vacuum vessels
- Statistical process control

Features/Benefits

- Compact – placed at point of use for accurate reading and quick response time
- Lightweight – ideal for End-of-Arm Tooling, robotic end effectors
- Low power consumption
- Mountable to both Vaccon or non-Vaccon M5 vacuum port
- Swivel fitting – operates in any position
- RoHS compliant and meets EMC standards

Vaccon's ultra-mini electronic vacuum sensors provide continuous voltage output (1-5v) proportional to the system vacuum level. Connected to a feedback interface such as a digital display or PLC, the VTMV is a cost effective, reliable sensor that maintains application consistency. Sensors can be mounted directly to Vaccon's Mini, Mid and MP Series pumps.

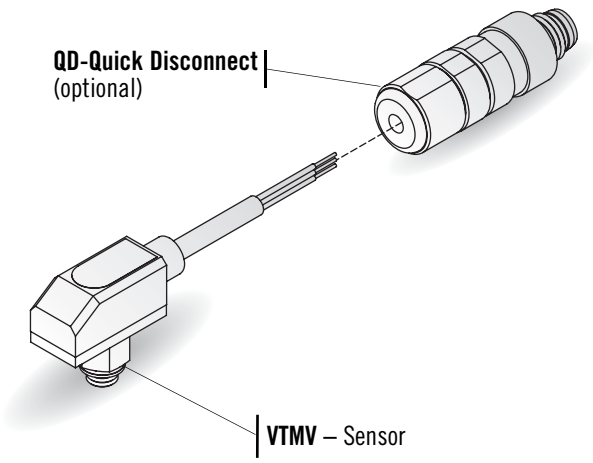
Sensor Options:

- Electrical quick disconnects

How to Specify:

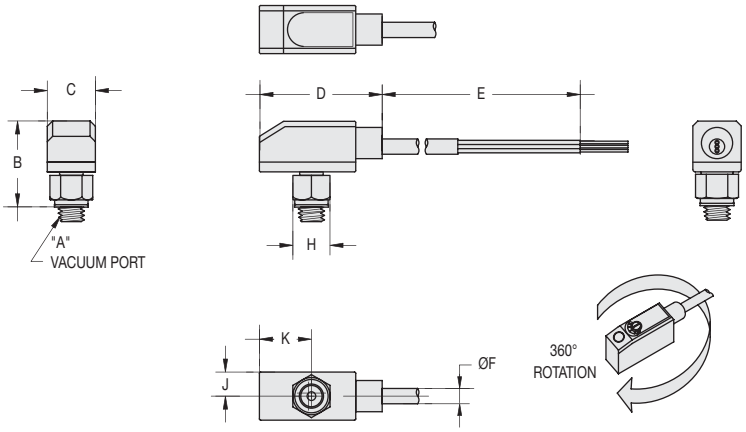
- **Sensor:** VTMV
- **Sensor w/Quick Disconnect:** VTMV-QD

VTMV Sensor Configurations and Options:



Standard Sensor: VTMV

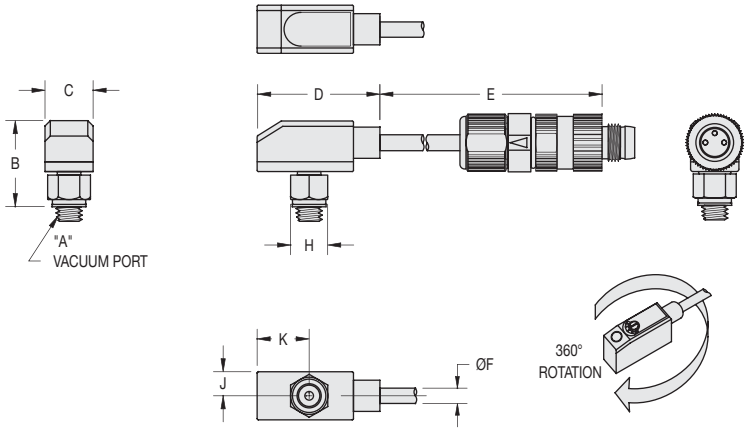
VTMV



Model #	Dimensions										Weight
		A	B	C	D	E	F	H	J	K	
VTMV	in.	M5	0.71	0.39	1.01	57.80	0.13	0.30	0.20	0.43	1.0 oz
	mm	M5	18.0	9.9	25.7	1468.1	3.3	7.6	5.1	10.9	28 g

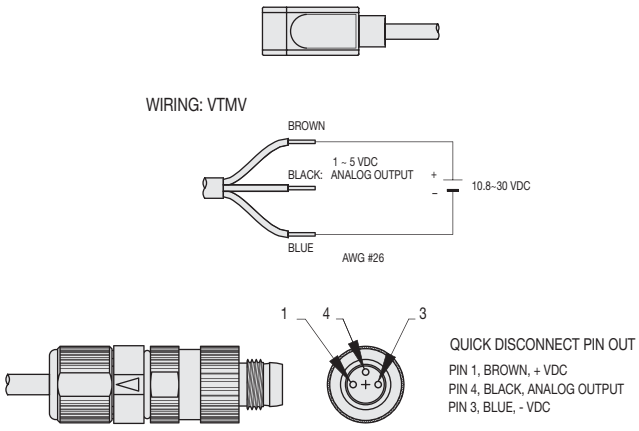
Sensor with Quick Disconnect: VTMV-QD

VTMV-QD



Model #	Dimensions										Weight
		A	B	C	D	E	F	H	J	K	
VTMV-QD	in.	M5	0.71	0.39	1.01	57.80	0.13	0.30	0.20	0.43	1.6 oz
	mm	M5	18.0	9.9	25.7	1468.1	3.3	7.6	5.1	10.9	45 g

Wiring Schematic for VTMV



VTMV Electronic Vacuum Sensor Specifications:

Rated Vacuum Range:	0" to 30" Hg [0 mbar to -1015 mbar]
Burst Pressure:	29 PSI [2 bar]
Media:	Non-Corrosive, Dry Gases
Supply Voltage:	10.8 to 30 VDC
Current Consumption:	20 mA Max.
Sensing/Switching Material:	Single Crystal Silicon
Output:	1 to 5 VDC
Electrical Connection:	3 Wire - 26 AWG - 5' [1.5M], Optional 3 pin, M8 Quick Disconnect
Response Time:	Approximately 1 ms
Circuit Protection:	NONE
Linearity:	+/- 0.5% Full Scale
Thermal Error:	+/- 2% Full Scale/121ºF [50ºC]
Thermal Compensation:	32ºF to 121ºF [0ºC to 50ºC]
Display:	None
IP Protection:	IP00
Operating Temperature:	15ºF to 140ºF [-10ºC to 60ºC]
Operating Humidity:	35 to 85% RH (No Condensation)
Construction:	Glass filed ABS/Aluminum/Buna
Fitting/Connection:	M5x.8 - 360º swivel male fitting
Weight:	1 oz [28.3g]
Safety and Environmental Compliance:	CE, RoHS

Solid State Vacuum Sensors

Miniature, precision control

VSSA, VSSV Series

Vacuum Sensors shown with optional adapters and quick disconnect

Ideal Applications:

- Robotic control
- Part present detection
- Monitoring vacuum
- Manifold mount

Features/Benefits

- Compact – placed at point of use for accurate reading and quick response
- Lightweight – 1 oz [28.35g] – ideal for End-of-Arm Tooling
- Accurate and repeatable
- RoHS compliant and meets EMC standards

Vaccon's electronic vacuum sensors provide continuous voltage or current output proportional to the system vacuum. These sensors are available as a 4-20mA, or 0-5VDC output devices

Because sensors provide a constant signal, system design may be reconfigured with software changes rather than mechanical adjustment typical of a switch.

Solid state sensors can be assembled directly onto all Vaccon Mid Series vacuum pumps at the factory or in the field.

Vacuum Sensor Options:

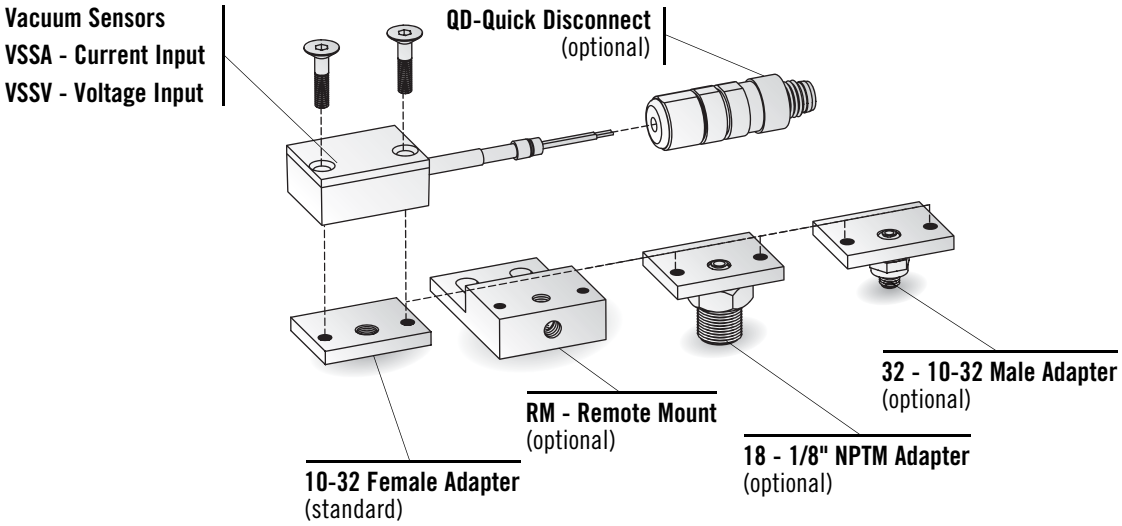
- Remote mount
- Male ports adapters 10-32 or 1/8" NPT
- 10' [3m] leads
- Electrical quick disconnects

Standard Vacuum Sensors:

VSSA: Designed to interface with a Current-input module of a PLC and provides an analog current output proportional to the pressure level present at the sensor.

VSSV: Designed to interface with a Voltage-input module of a PLC and provides an analog voltage output proportional to the pressure level present at the sensor.

VSSA, VSSV Vacuum Sensor Configurations and Options:



How to Specify:

VSSA - RM - QD

P/N	Vacuum Sensor
VSSA	Adj. Mini Vacuum Sensor – Current Input
VSSV	Adj. Mini Vacuum Sensor – Voltage Input

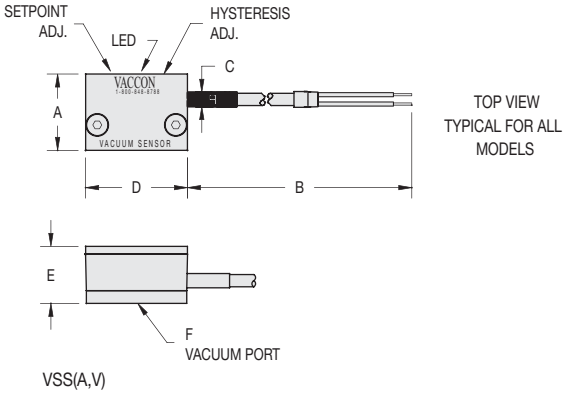
P/N	Switch
QD	Quick Disconnect

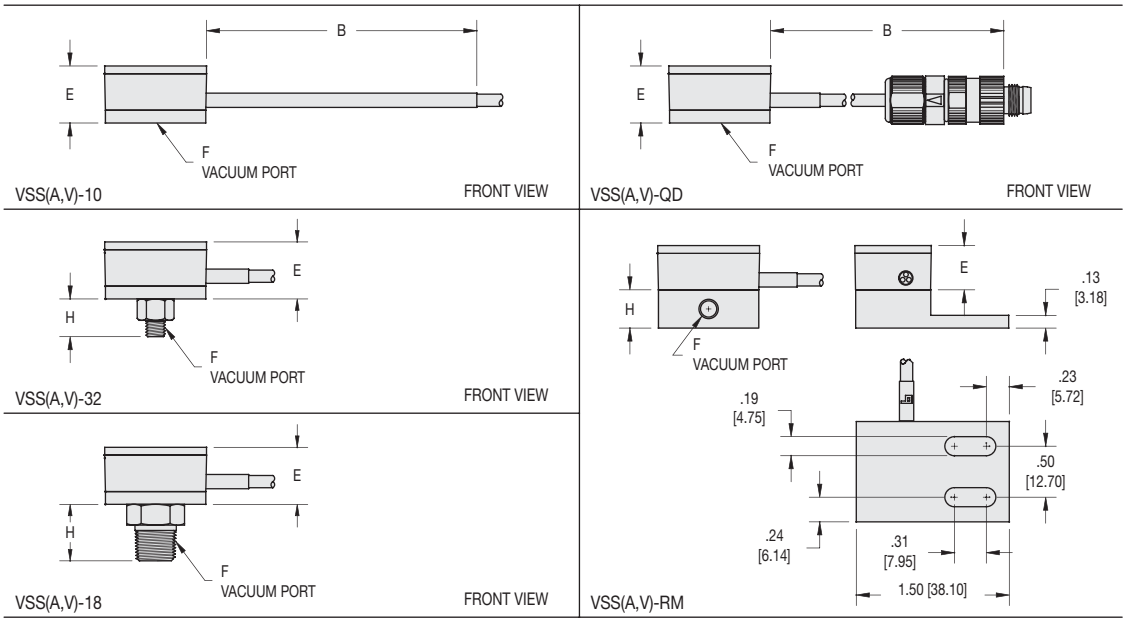
P/N	Adapter Options
	10-32 Female Adapter (Std)
RM	Remote Mount
32	10-32 Male Adapter
18	1/8" NPTM Adapter
10	10' [3m] Leads

Note: When ordering vacuum sensor attached to a Vaccon vacuum pump, please order pump number and sensor part number i.e. **VP20-150H-VSSA**

Solid State Vacuum Sensors: VSSA, VSSV

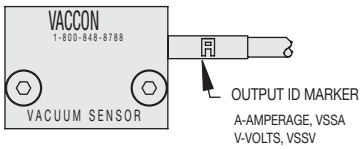
VSSV



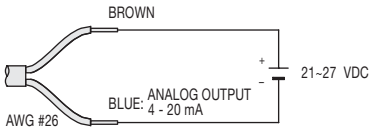


Model #	Dimensions	A	B	C	D	E	F	H	Weight
VSS (A, V)	in.	0.75 [19.1]	24.00 [609.6]	0.12 [3.0]	1.00 [25.4]	0.56 [14.2]	10-32 F	N/A	0.6 oz [17g]
	mm								
VSS (A, V)-10	in.		120.00 [3084.0]						1.5 oz [43g]
	mm								
VSS (A, V)-32	in.		24.00 [609.6]				10-32 M	0.46 [11.7]	0.7 oz [20g]
	mm								
VSS (A, V)-18	in.						1/8 NPT M	0.55 [14.0]	1.0 oz [28g]
	mm								
VSS (A, V)-QD	in.						10-32 F	N/A	1.2 oz [34g]
	mm								
VSS (A, V)-RM	in.					0.44 [11.2]		0.37 [9.4]	1.1 oz [31g]
	mm								

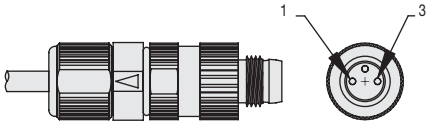
Wiring Schematic for VSS (A, V)



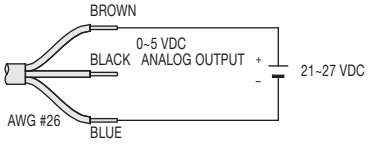
WIRING: VSSA



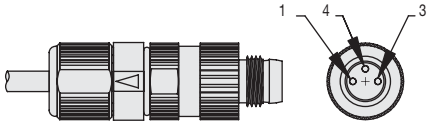
QUICK DISCONNECT PIN OUT
PIN 1, BROWN, + VDC
PIN 3, BLUE, - VDC, ANALOG OUTPUT



WIRING: VSSV



QUICK DISCONNECT PIN OUT
PIN 1, BROWN, + VDC
PIN 4, BLACK, ANALOG OUTPUT
PIN 3, BLUE, - VDC



VSS (A, V) Solid State Vacuum Sensor Specifications:

	VSSA	VSSV
Rated Vacuum Range:	0.5" to 30 Hg [-34 mbar to -1015 mbar]	
Proof Pressure:	45 PSI [3.1 bar]	
Burst Pressure:	75 PSI [5.2 bar]	
Media:	Non-Corrosive, Dry Gases	
Supply Voltage:	21 to 27 VDC	
Current Consumption:	20 mA Max.	
Sensing/Switching Material:	Single Crystal Silicon	
Output:	4-20 mA	0-5 VDC
Electrical Connection:	2 Wire - 26 AWG - 2' [0.6m], Optional 3 pin, M8 Quick Disconnect	3 Wire - 26 AWG - 2' [0.6m], Optional 3 pin, M8 Quick Disconnect
Circuit Protection:	NONE	
Linearity:	+/- 0.5% Full Scale	
Thermal Error:	+/- 7% Full Scale/212ºF Max. [100ºC]	
Thermal Compensation:	None	
Display:	None	
IP Protection:	IP00	
Operating Temperature:	-40ºF to 150ºF [-40ºC to 65ºC]	
Operating Humidity:	35 to 85% RH (No Condensation)	
Construction:	Glass filed ABS/Aluminum/Buna	
Fitting/Connection:	10-32 Female Standard, Optional 10-32 Male, 1/8" NPT Male, Face Seal Mount	
Weight:	0.6 oz [17g]	
Safety and Environmental Compliance:	RoHS	

Solid State Pressure Sensors

Miniature, precision control

PSSA, PSSV Series

Ideal Applications:

- Process control
- Leak testing
- Monitoring
- Manifold mount

Features/Benefits

- Compact – placed at point of use for accurate reading and quick response
- Lightweight – 1 oz [28.35 g]
- Accurate and repeatable
- RoHS compliant and meets EMC standards

Pressure Sensors shown with optional adapters and quick disconnect

Vaccon's electronic pressure sensors provide continuous voltage or current output proportional to the system pressure. These sensors are available as a 4-20mA, or 0-5VDC output devices.

Because sensors provide a constant signal, system design may be reconfigured with software changes rather than mechanical adjustment typical of a switch.

Pressure Sensor Options:

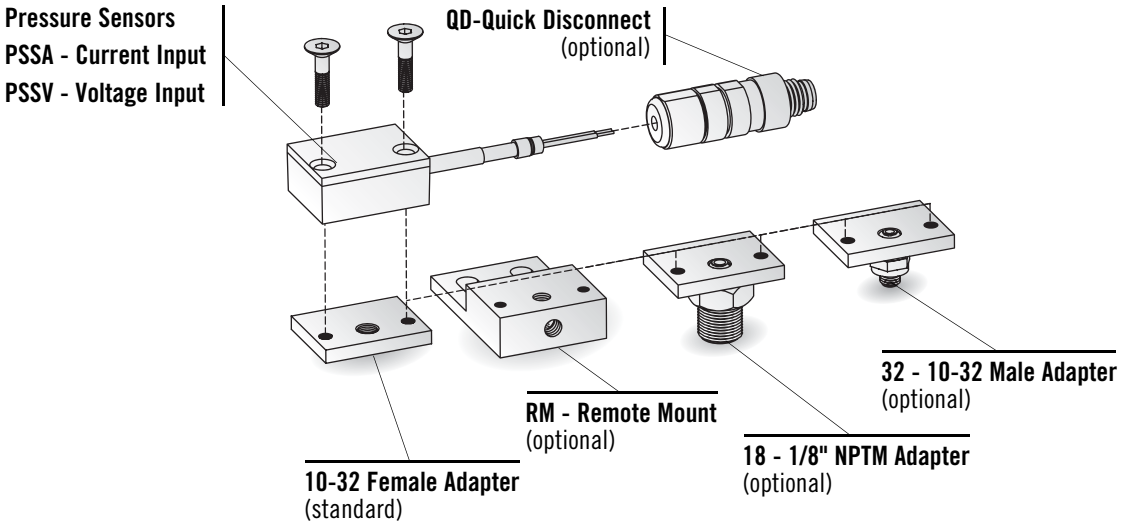
- Remote mount
- Male port adapters 10-32 or 1/8" NPT
- 10' [3m] leads
- Electrical quick disconnects

Standard Pressure Sensors:

PSSA: Designed to interface with a Current-input module of a PLC and provides an analog current output proportional to the pressure level present at the sensor.

PSSV: Designed to interface with a Voltage-input module of a PLC and provides an analog voltage output proportional to the pressure level present at the sensor.

PSSA, PSSV Pressure Sensor Configurations and Options:



How to Specify:

PSSA - RM - QD

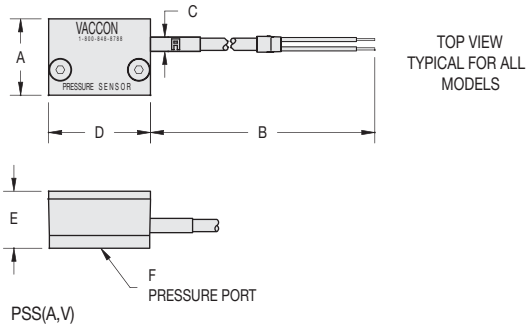
P/N	Pressure Sensor
PSSA	Adj. Mini Pressure Sensor – Current Input
PSSV	Adj. Mini Pressure Sensor – Voltage Input

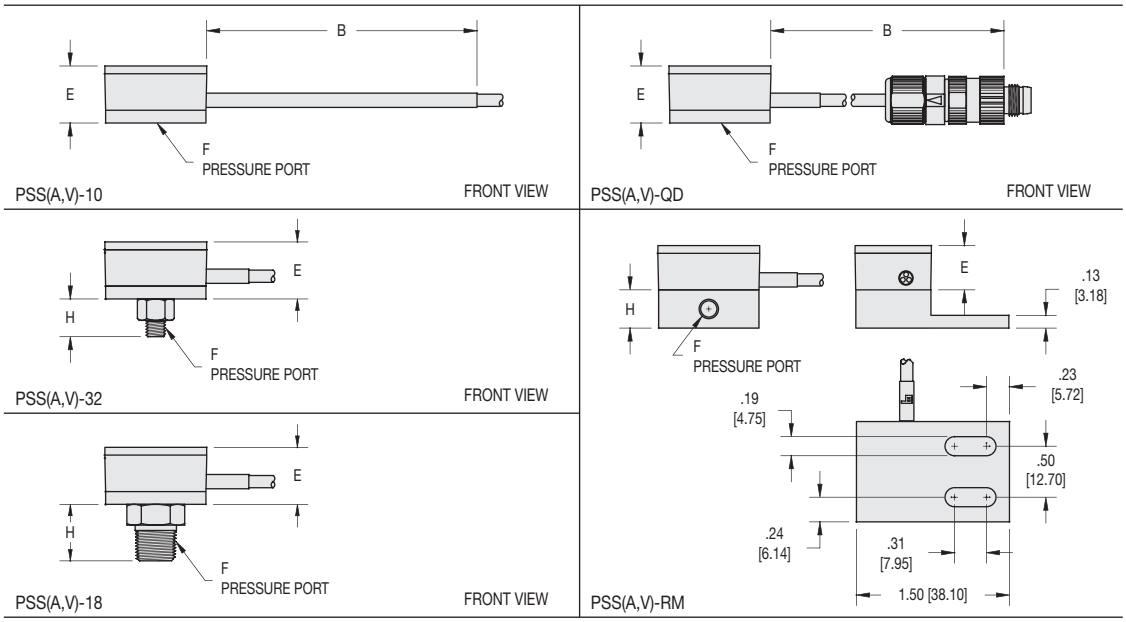
P/N	Switch
QD	Quick Disconnect

P/N	Adapter Options
	10-32 Female Adapter (Std)
RM	Remote Mount
32	10-32 Male Adapter
18	1/8" NPTM Adapter
10	10' [3m] Leads

Solid State Pressure Sensor: PSSA, PSSV

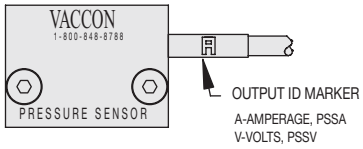
PSSV



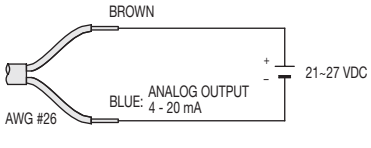


Model #	Dimensions	A	B	C	D	E	F	H	Weight
PSS (A, V)	in.	0.75 [19.1]	24.00 [609.6]	0.12 [3.0]	1.00 [25.4]	0.56 [14.2]	10-32 F	N/A	0.6 oz [17g]
	mm								
PSS (A, V)-10	in.		120.00 [3084.0]						1.5 oz [43g]
	mm								
PSS (A, V)-32	in.		24.00 [609.6]				10-32 M	0.46 [11.7]	0.7 oz [20g]
	mm								
PSS (A, V)-18	in.						1/8 NPT M	0.55 [14.0]	1.0 oz [28g]
	mm								
PSS (A, V)-QD	in.						10-32 F	N/A	1.2 oz [34g]
	mm								
PSS (A, V)-RM	in.					0.44 [11.2]		0.37 [9.4]	1.1 oz [31g]
	mm								

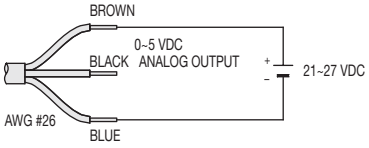
Wiring Schematic for PSS (A, V)

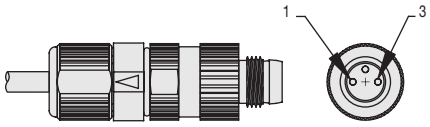


WIRING: PSSA

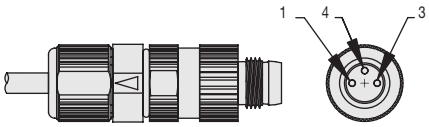


WIRING: PSSV





QUICK DISCONNECT PIN OUT
PIN 1, BROWN, + VDC
PIN 3, BLUE, - VDC, ANALOG OUTPUT



QUICK DISCONNECT PIN OUT
PIN 1, BROWN, + VDC
PIN 4, BLACK, ANALOG OUTPUT
PIN 3, BLUE, - VDC

PSS (A, V) Solid State Pressure Sensor Specifications:

	PSSA	PSSV
Rated Pressure Range:	10 PSI to 150 PSI [0.7 bar to 10.3 bar]	
Proof Pressure:	300 PSI [20.7 bar]	
Burst Pressure:	500 PSI [34.5 bar]	
Media:	Non-Corrosive, Dry Gases	
Supply Voltage:	21 to 27 VDC	
Current Consumption:	20 mA Max.	
Sensing/Switching Material:	Single Crystal Silicon	
Output:	4-20 mA	0-5 VDC
Electrical Connection:	2 Wire - 26 AWG - 2' [0.6m], Optional 3 pin, M8 Quick Disconnect	3Wire - 26 AWG - 2' [0.6m], Optional 3 pin, M8 Quick Disconnect
Circuit Protection:	NONE	
Linearity:	+/- 0.5% Full Scale	
Thermal Error:	+/- 7% Full Scale/212ºF Max. [100ºC]	
Thermal Compensation:	None	
Display:	None	
IP Protection:	IP00	
Operating Temperature:	-40ºF to 150ºF [-40ºC to 65ºC]	
Operating Humidity:	35 to 85% RH (No Condensation)	
Construction:	Glass filed ABS/Aluminum/Buna	
Fitting/Connection:	10-32 Female Standard, Optional 10-32 Male, 1/8" NPT Male, Face Seal Mount	
Weight:	0.6 oz [17g]	
Safety and Environmental Compliance:	RoHS	

Electronic Quick Disconnects

For Digital and Solid State Vacuum and Pressure Switches and Sensors

Ideal Applications:

- Pick and Place
- Robotic devices
- Conveyors
- Material handling devices
- Automated assembly devices
- Heavy-duty industrial environments

Features/Benefits:

- IP 67
- Factory installed or field-attachable
- Threaded couplings for harsh environments
- Quick replacement & easy field conversion
- Easy disconnect for system maintenance
- RoHS compliant

Electrical Quick Disconnects can be added to all Vaccon vacuum switches and sensors

Male or female connectors or female cordsets

Vaccon offers electrical quick disconnects for Vaccon digital and solid-state vacuum and pressure switches and sensors. With a screw-plug connection, Vaccon quick disconnects save time and money by eliminating the labor-intensive assembly process of joining/soldering wires together. Vaccon switches and sensors are available with a 3 or 5 pole male connector that can be factory installed or field wired.

Depending on your wiring needs, Vaccon also offers field wire-able female cordsets for complete wiring systems that quickly, easily and safely connect to system controllers, PLC's and other electronic extension connectors.

Quick Disconnect Options:

- Male or Female Threaded Connectors
- 3 Pole or 5 Pole
- M8 and M12 Threads
- Connectors and Cordsets

Configurator, CAD Drawings, and On-line Store

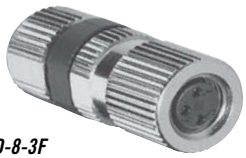
Click Here

Electrical Quick Disconnects – Factory Installed or Field Wire-able				
Model #	**Pin Connection**	**Thread Size**	**IP Rating**	**Vaccon Sensor/Switch**
QD-8-3M	3 Pole Male	M8	IP 67	VSXN, VSXL, VSXP, PSXN, PSXL, PSXP, VSMP, VSMN, VTMV
QD-8-3F	3 Pole Female	M8	IP 67	Connector only - no wire
QD-12-5M	5 Pole Male	M12	IP 67	VDS-1000, PDS-1110 only (6' leads)
QD-12-5F	5 Pole Female	M12	IP 67	Connector only - no wire

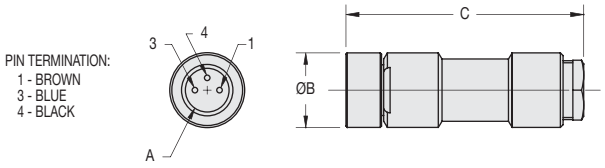
Molded Single End Cordsets				
Model #	**Pin Connection**	**Thread Size**	**IP Rating**	**Vaccon Sensor/Switch**
QDS-8-3F	3 Pole female	M8	IP 67	Connects to your system controller or PLC
QDS-12-5F	5 Pole Female	M12	IP 67	Connects to your system controller or PLC

Note: Standard cordset length is 3 meters.

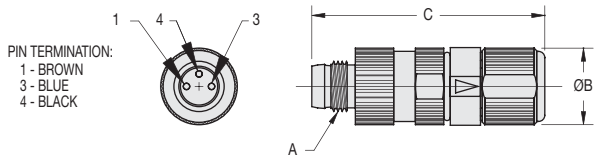
M8 Connectors – 3 Pole



QD-8-3F



QD-8-3M



Specifications:

Termination: Insulation Displacement: Accepts conductors from #26 to #22 AWG [0.14-0.38mm]

Voltage Rating: 60V AC / 75V DC

Ambient Operating Temp: -40° to 185°F [-40° to 85°C]

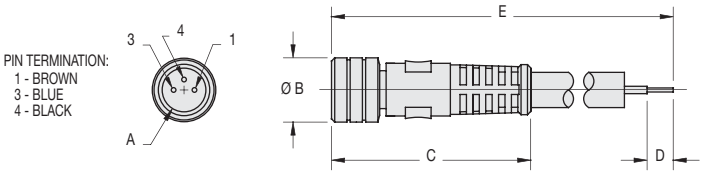
Amperage: 4A

Accepts cable diameters from 0.13 to 0.20" [3.5 to 5mm]

Model #		Dimensions			Weight
		A	B	C	
QD-8-3F	in.	M8 x 1 (Female)	0.47	1.46	0.3 oz
	mm		11.9	37.1	85 g
QD-8-3M	in.	M8 x 1 (Male)	0.47	1.43	0.3 oz
	mm		11.9	36.3	85 g

M8 Single-Ended Cordset – 3 Pole Female

QDS-8-3F



Model #		Dimensions					Weight
		A	B	C	D	E	
QD-8-3F	in.	M8 x 1 (Female)	0.47	1.22	0.16	3 M	3.1 oz
	mm		11.9	31.0	4.1		88 g

Specifications:

Cable: Black, PUR cable jacket

Conductors: 3x #24 AWG [3 x 0.25 mm]

Outside Diameter: 0.17" [4.3mm]

Electrical: 100V AC/DC

Amperage: 4A

Environmental: IP 67

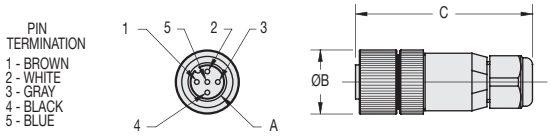
Ambient Operating Temp: -22° to 194°F [-30° to 90°C]

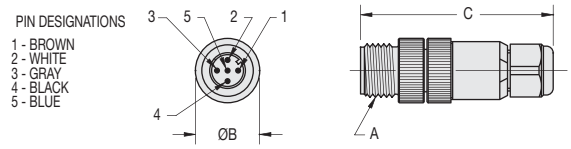
Cord Length: 3 meters – Consult factory for other lengths.

M12 Connectors – 5 Pole

QDS-12-5F

QDS-12-5M





Specifications:

Termination: Screw Terminal: Accepts conductors from #24 to #18 AWG [0.25-0.75mm]

Voltage Rating: 30V AC / 36V DC

Ambient Operating Temp: -40° to 185°F [-40° to 85°C]

Amperage: 4A

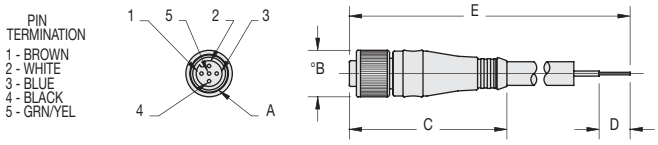
Environmental: IP 67

Accepts cable diameters from 0.16 to 0.25 [4 to 6mm]

Model #	Dimensions				Weight
		A	B	C	
QDS-12-5F	in.	M12 x 1 (Female)	0.79	2.17	1.1 oz
	mm		20.1	55.1	31 g
QDS-12-5M	in.	M12 x 1 (Male)	0.79	2.36	1.0 oz
	mm		20.1	59.9	28 g

M12 Single-Ended Cordset – 5 Pole Female

QDS-12-5M



Model #	Dimensions						Weight
		A	B	C	D	E	
QDS-12-5F	in.	M12 x 1 (Female)	0.79	1.84	0.38	3 M	3.1 oz
	mm		20.1	46.7	9.7		88 g

Specifications:

Cable: Black, PUR cable jacket

Conductors: 5 x #25 AWG [5 x .34 mm]

Outside Diameter: 0.23" [5.9mm]

Electrical: 160V AC/DC

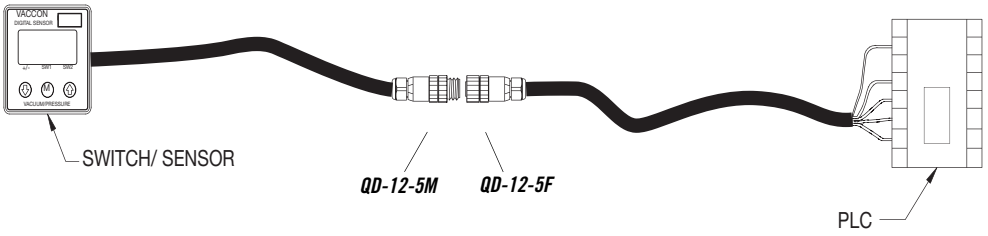
Amperage: 4A

Environmental: IP 67

Ambient Operating Temp: -22° to 194°F [-30° to 90°C]

Cord Length: 3 meters – Consult factory for other lengths.

Typical Wiring Configuration



Typically, the wiring from your PLC or system controller will have a female connection. Factory installed switches and sensors come with a male connector allowing quick and easy installation to compatible connectors. If your existing wiring system does not have a compatible connector or consists of leads only, Vaccon offers a female quick disconnect that can be attached in the field as shown in the figure above. Or, if you prefer, you can replace the entire wiring system from the PLC or system controller with a Vaccon female quick disconnect cordset.

How to Specify:

Quick Disconnect Only – model number, i.e. **QD-12-5M**

Factory installed Sensor and Quick Disconnect – sensor and quick disconnect – i.e. **VDS-1000-QD-5M**

Quick Disconnect Cordset – i.e. **QDS-12-5F** (female only)

Vaccon End-of-Arm Tooling

All VEOAT products are compatible with 1" [25mm] and 1.5" [40mm] extrusions

Vaccon designed, assembled, tested and shipped this new EOAT tool for a Kuka Robot in one day.

Vaccon's new, modular End-of-Arm Tooling components offer everything you need to create a complete "wrist-down" EOAT for your material handling operations.

The VEOAT innovative component design is modular, lightweight, compact, and easy-to-connect. Using VEOAT, you can integrate vacuum pumps, suction cups, spring levelers, fittings, and manifolds using simple erector-set connectivity in minimum design time.

VEOAT Components or Complete VEOAT Solutions

You can order VEOAT products separately and build your own tooling, or purchase a complete pre-built VEOAT solution—fully configured, plumbed, and tested. VEOAT solutions ship assembled using one robot-to-VEOAT connection for easy, out-of-the-box installation.

Ideal Applications:

- Automotive
- Packaging
- Palletizing
- Runners from molds
- Conveying systems
- Fruit packing
- Mold removal – Picking parts
- Work holding device
- Stamping press transfer
- Packaged food & bakery
- Medical

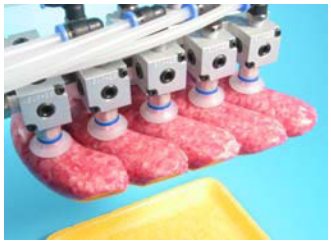
Features/Benefits:

- T-Slot fraction or metric compatible components – Attaches to our framework or yours
- Minimal design time – pre-designed modular components, streamlined systems
- Easy set-up and fast installation – order out of the box complete or assemble on site
- Lightweight components – faster speeds with less stress on robot for longer life cycle
- Cost effective – integrates with existing plant equipment for quick tool changes, minimal downtime
- Flexible manufacturing/automation – optional accessories and adjustability
- Increased efficiency – large selection of venturi pumps to maximize productivity
- Built-in sensors – part-present signal and vacuum level

Vaccon Designed, Built, and Tested

Vaccon engineers have years of material handling experience, in every industry from soap to electronics. We have a proven record of identifying customer needs, developing and testing End-of-Arm tools, and delivering projects on time and within budget. Take advantage of our extensive vacuum knowledge to select the proper vacuum pump/cup combination and design your tool. Vaccon will build your tool and test it using your product at our in-house Tech Center, usually within the same day.

Picking and placing packaged rolls, CDF 375H-ST6BX EOAT handles flexible, uneven objects.



Multi-port pump EOAT with multiple manifold blocks and cups for food packaging operation.

VP80-200H-MP and VP20-100H EOAT handle melons in fruit packing plant.

Eliminate the Guesswork: Contact Us!

Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at www.vaccon.com

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email engineering@vaccon.com

Modular Venturi Vacuum Pumps

Modular Venturi Vacuum Pumps

Modular Venturi Vacuum Pumps with Pneumatic Blow-off

Modular Venturi Vacuum Pumps Solenoid Operated with Pneumatic Blow-off

Multi-port Venturi Vacuum Pumps

Max Series Modular Venturi Pumps

Venturi Vacuum Pumps with "Apple Core" style mount & clamp

Vacuum Cups

Bellow Cups

Oval Cups

Flat Cups

Deep Cups

Extrusions and End Caps

1" [25mm] extrusion has 1/4" [6.5mm] T-slot – 3 sizes

1.5" [40mm] extrusion has 5/16" [10mm] T-slot – 2 sizes

End caps for all size extrusions

Mounting Brackets for 1" [25mm] Extrusion fits 1/4" [6.5mm] T-slot

Universal Bracket (Fixed) with optional mounting hardware

Universal Bracket (Adjustable) with optional mounting hardware

Angled Universal Bracket with optional mounting hardware

Mounting Brackets for 1.5" [40mm] Extrusion fits 5/16" [10mm] T-slot

Universal Bracket (Fixed) with optional mounting hardware

Universal Bracket (Adjustable) with optional mounting hardware

Angled Universal Bracket with optional mounting hardware

Vacuum Cup Mount/Manifold

MB18-25
For 1" Extrusion Only

MB14-40

All Female Ports

Male Face Mount MBF14-40 Series

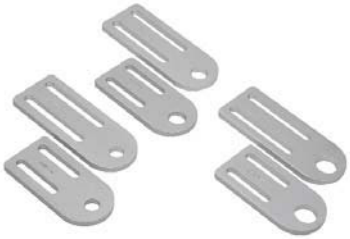
Male Bottom Mount MBB14-40 Series

Male Bottom Mount with Oval Cup

Light Duty Spring Leveler Brackets

Spring leveler brackets and hardware for 1" [25mm] extrusions

Fits VSL1 & 2 Spring Levelers



Spring Leveler Brackets for 1.5" [40mm] extrusions (hardware not shown)

Fits VSL1, 2 & 3 Spring Levelers

Spring Levelers/Level Compensators and Swivel Joint

Spring Levelers VSL1, 2, & 3 Series

Heavy Duty Spring Levelers SLB40-2, 3 Series

Adjustable, Fixed Extension Shaft and Bracket – FEB40-2,3 Series

Vacuum Cup Swivel Joint CSJ3 Series Shown with Bellows cup

Push-to-Connect Fittings for Vacuum Pumps and Spring Levelers

Male Straight Fittings

Female Straight Fittings

Male Elbow Fittings

Female Elbow Fittings

End-of-Arm Tooling Design Guide

VACCON VACUUM PRODUCTS

Call Vaccon First!

We will save you time and money.

Here's why.

Robots and robotic tooling help you increase productivity, improve product quality, and reduce costs. The right End-of-Arm Tools (EOAT) can improve both the flexibility and cost effectiveness by working with and complementing the robot. Vaccon designs vacuum tooling using modular components that are compact, lightweight, durable, and easy to assemble. This creates flexible, streamlined End of Arm Tooling that works in harmony with the robot.

As experts in vacuum equipment design for manufacturing automation applications, Vaccon helps customers find solutions for their material handling problems by creating new tools, re-designing existing tools or re-building systems. Take advantage of our years of engineering expertise to quickly design, build, and re-tool your robotic EOAT to ensure safe part handling, extend the life of the robot, increase production, and reduce costs.

Work in reverse, design "the tool" first before selecting the robot.

Focus on key aspects of the part to be handled (i.e. weight, porosity, travel distance, desired speed, etc.)

For new applications, we highly recommend that you design the EOAT before selecting the robot. Knowing the load (the combined weight of the part and the EOAT) helps you to choose the optimum robot for the job.

For re-tooling applications when the robot is already in place, carefully consider the load limits of the robot.

Optimum EOAT Design Sequence:

1. Identify the part weight, size, material porosity and surface area for cup placement on the part.
2. Select cups and/or levelers based on accepted Safety Factors (see page 242)
3. Select the vacuum pump(s) based on performance and porosity (see page 243)
4. Select the Vaccon EOAT components required for your application.
5. Assemble the EOAT *or*
6. Vaccon will design, assemble, test and ship the completed EOAT to you.

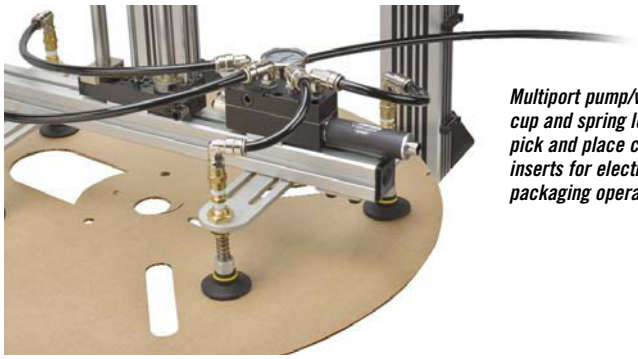
Vaccon EOAT Application Engineering Support

Our dedicated application engineers are ready to help you to select the right components or to design, assemble, and test the EOAT. Vaccon customer support provides:

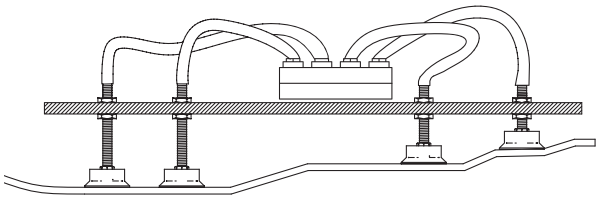
- Experts in vacuum technology
- Experts in manufacturing
- Experts in automation applications
- Experts in pneumatic design
- Free 2D & 3D drawings of all components or build your own using Vaccon's website or CD.

Spring Levelers/ Level Compensators

VSL Series (1, 2, 3)



Multiport pump/vacuum cup and spring levelers pick and place cardboard inserts for electronic packaging operation.



Spring levelers handle uneven surfaces or odd shaped objects

Spring Leveler Mounting Bracket with VSL1 Series Spring Levelers

Ideal Applications:

- Automotive automation
- Material handling
- Robotic assembly
- Pick and place
- Sheet feeding
- Removing parts from molds

Benefits/Features:

- Smooth operation – reduces shock to an object that is being lifted
- Lightweight – reduces stress to robotic end effectors
- High flow – maximize performance and holding force for porous objects
- Flexible mounting options for robotic end effectors/End-of-Arm Tooling
- Reduces machine indexing when picking up material from a stack

Configurator, CAD Drawings, and On-line Store

Click Here

When handling sensitive objects such as fruit, Vaccon Spring Levelers feature a soft touch allowing compliance for end-of-arm tools to ensure that all cups make contact. This is especially important when handling large objects such as sheets of plywood that may be warped and the tool has multiple vacuum cups that must make contact.

For design flexibility, Vaccon offers a large range of sizes and travel lengths 0.2" [5mm] to 3.6" [91mm] to accommodate the necessary over-driving by the lifting mechanism to bring all cups in contact.

Vaccon's Spring Leveler design surpasses the competition. We offer large thru-bores that allow higher vacuum flow to overcome leakage and for rapid evacuation to ensure safe handling operations.

The Series 3 Levelers have high performance bearings that prevent binding from side loading, provide a smooth operation over long strokes and prolong leveler life.

Standard Spring Levelers:

- 3 Series
- 12 models
- Nickel plated steel shafts, stainless steel springs and brass mounting nuts

Spring Leveler Options:

- Mounting brackets compatible with 1/4" [6.5mm] T-slot or 5/16" [10mm] T-slot extrusions
- Vacuum cups and vacuum fittings
- Custom materials (FDA approved) and sizes available – consult factory

How to Specify:

1. When ordering spring levelers check the "B" dimension for travel range.
2. Please order spring levelers and fittings as separate line items based on part number i.e. **VSL1-20**.
3. If you would like parts factory assembled, please specify on order "factory assembled."

Eliminate the Guesswork: Contact Us!

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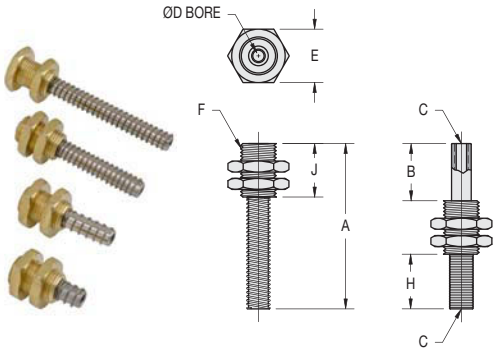
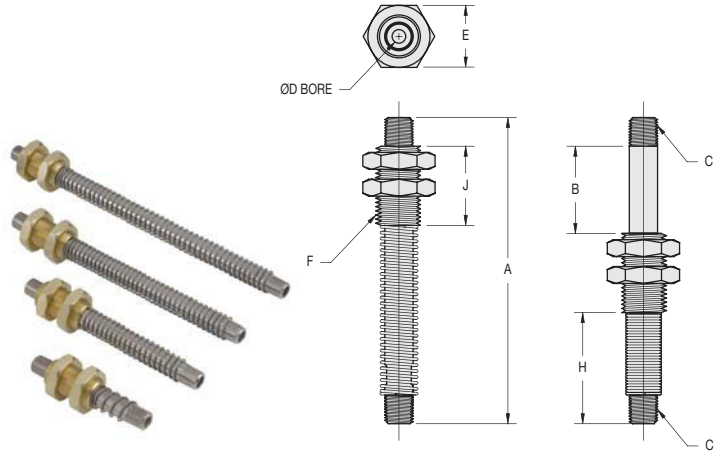
To download a complete set of drawings in 13 different CAD formats, please visit our website at www.vaccon.com

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email engineering@vaccon.com

Spring Levelers Groups 1, 2, & 3 – VSL1, VSL2 & VSL3



Spring Leveler Group 1



Spring Leveler Groups 2 & 3

Dimensions											
Model #		A	B-Travel	C	D	E	Thread	H	J	Thickness	Weight
VSL1-20	in.	1.14	0.20	10-32-F	0.15 [19.0]	0.75 [19.0]	1/2-20 UNF	0.19	0.75 [19.1]	0.43 [10.9]	1.7 oz
	mm	29.0	5.1					4.8			48 g
VSL1-40	in.	1.54	0.40					0.39			1.8 oz
	mm	39.1	10.2					9.9			51 g
VSL1-80	in.	2.32	0.80					0.77			1.9 oz
	mm	58.9	20.3					19.6			54 g
VSL1-120	in.	3.11	1.20					1.16			2.1 oz
	mm	79.0	30.5					29.5			60 g
VSL2-40	in.	2.70	0.40	1/8" NPTM	0.24 [28.0]	0.88 [22.2]	5/8-18 UNF	0.80	1.10 [27.9]	0.72 [18.3]	2.6 oz
	mm	68.6	10.1					20.3			74 g
VSL2-120	in.	4.27	1.20					1.57			3.2 oz
	mm	108.5	30.5					39.9			91 g
VSL2-200	in.	5.83	2.00					2.33			4.0 oz
	mm	148.1	50.8					59.2			113 g
VSL2-280	in.	7.41	2.80					3.11			4.6 oz
	mm	188.2	71.1					79.0			130 g
VSL3-120	in.	4.27	1.20	1/4" NPTM	0.31 [7.9]	1.13 [28.6]	3/4-16 UNF	1.17	1.50 [38.1]	1.02 [25.9]	5.9 oz
	mm	108.5	30.5					29.7			117 g
VSL3-200	in.	5.83	2.00					1.93			7.3 oz
	mm	148.1	50.8					49.0			207 g
VSL3-280	in.	7.41	2.80					2.71			8.7 oz
	mm	188.2	71.1					68.8			247 g
VSL3-360	in.	9.00	3.60					3.50			10.1 oz
	mm	228.6	91.4					88.9			286 g

Custom Vacuum Spring Levelers - VSL Series

Ideal for OEM engineers and designers

Creative Engineering • Precision Manufacturing • Extensive Application Experience

When off the shelf doesn't work, Vaccon's engineering expertise and manufacturing capabilities can provide custom solutions to your specifications.

Whether it's as simple as modifying a standard product, or more complex requiring new products with precise tolerances, or special materials, Vaccon has the solution.

VP1X-100H vacuum pump with pneumatic blow-off with stainless steel spring leveler.

Our custom made 303 stainless steel spring leveler, vacuum cup and pump assembly attaches to swivel arm (not shown) for carton erecting application in food industry.

When size, shape, material and performance matter, it's Vaccon Vacuum Pumps.

Light Duty Spring Leveler Mounting Brackets

SLBS Series – Mounting brackets for 1" [25mm] extrusions

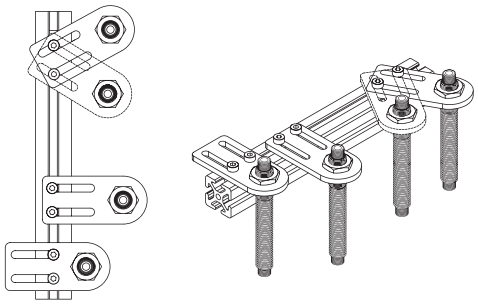
SLBF Series – Mounting brackets for 1.5" [40mm] extrusions

Configurator, CAD Drawings, and On-line Store

Click Here

VP0X-60H vacuum pump with SLBF1-4 mounting bracket and VSL1-20 spring leveler.

Quick change brackets for flexible mounting positions



Flexible mounting positions

Ideal Applications:

- End-of-arm-Tooling
- Robotic assembly
- Electronics
- Pick and place
- Injection Molding – parts removal

Features/Benefits

- Simple to assemble, modular End-of-Arm Tooling component
- Lightweight – Reduces stress to robotic end effector
- Flexible mounting – Top, sides or bottom of extrusions
- Easily adjusted and repositioned in seconds

Designed for flexible manufacturing operations, SLBF and SLBS Series mounting brackets attach to the top, sides or bottom of 1" [25mm] and 1.5" [40mm] extrusions.

Easily mounted and adjusted, the Light Duty Spring Leveler Brackets readily rotate, slide or pivot for accurate part alignment. If the part size or process should change, you can re-position the brackets in a matter of seconds.

Using your extrusions or ours, SLBF and SLBS Series mounting brackets connect to our VSL Series Spring Levelers (see page 333) and a variety of our venturi vacuum pumps to create a simple, off-the-shelf End-of-Arm device.

Standard Spring Leveler Brackets:

- **3 Series**: Fits VSL1, 2, 3 spring levelers
- **4 Sizes:** 2", 3", 4" and 5" lengths
- Anodized aluminum

Spring Leveler Bracket Options:

- Spring levelers, vacuum cups and vacuum fittings
- Swivel attachment – Available for Series 3 only
- Mounting hardware: 1/4" [6.5mm] T-slot compatible or 5/16" [10mm] T-slot compatible

Eliminate the Guesswork: Contact Us!

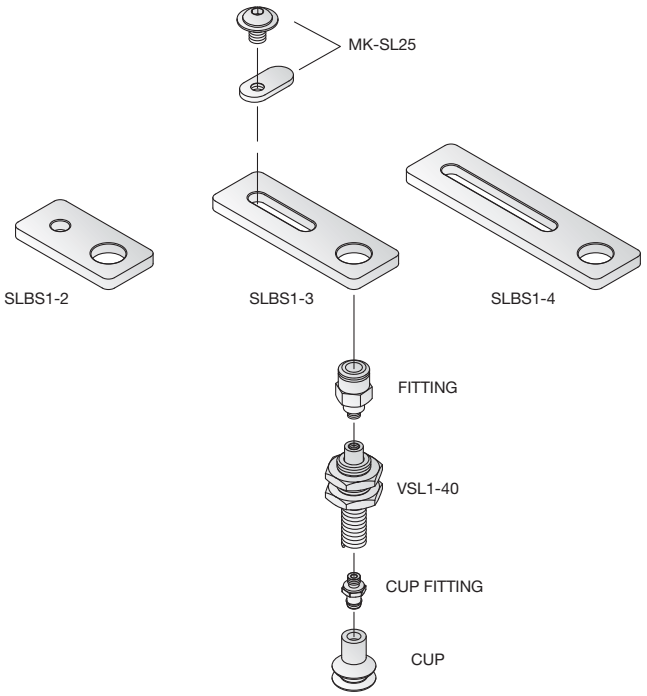
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at **www.vaccon.com**

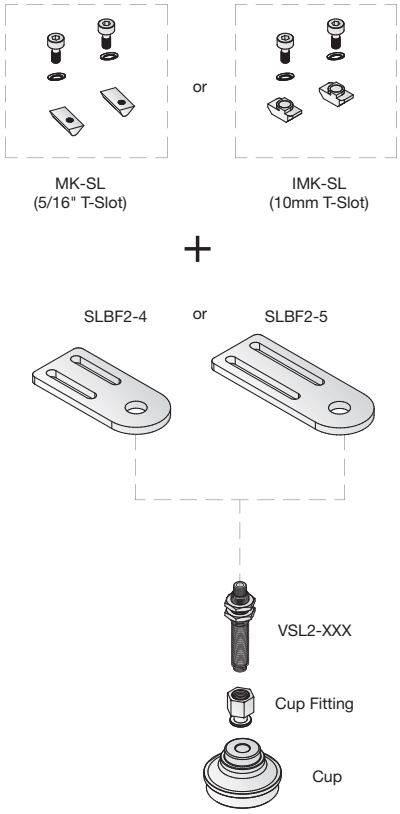
For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Light Duty Spring Leveler Mounting Bracket Assemblies: (Vaccon supplied or customer supplied extrusions)

SLBS Series
1" [25mm] extrusion,
1/4" [6.5mm] T-slot compatible



SLBF Series
1.5" [40mm] extrusion,
5/16" [10mm] T-slot compatible



Bracket Model Number	Size	For use with Vaccon Spring Levelers
SLBS1-2	2"	VSL1-(20, 40, 80, 120)
SLBS1-3	3"	VSL1-(20, 40, 80, 120)
SLBS1-4	4"	VSL1-(20, 40, 80, 120)
SLBF1-4	4"	VSL1-(20, 40, 80, 120)
SLBF1-5	5"	VSL1-(20, 40, 80, 120)
SLBS2-2	2"	VSL2-(40, 120, 200, 280)
SLBS2-3	3"	VSL2-(40, 120, 200, 280)
SLBS2-4	4"	VSL2-(40, 120, 200, 280)
SLBF2-4	4"	VSL2-(40, 120, 200, 280)
SLBF2-5	5"	VSL2-(40, 120, 200, 280)
SLBF3-4	4"	VSL3-(120, 200, 280, 360)
SLBF3-5	5"	VSL3-(120, 200, 280, 360)
MK-SL25	N/A	Mounting hardware – 1/4" T-slot
MK-SL	N/A	Mounting hardware – 5/16 T-slot
IMK-SL	N/A	Mounting hardware – 10mm T-slot

How to Specify:

Helpful hints:

1. Choose cup size/style based on part size & weight.
2. Choose spring leveler based on stroke length and bore size.
3. Choose bracket based on reach requirement 2", 3", 4" or 5."
4. Choose cup fitting based on thread size that matches spring leveler thread size (10-32F, 1/8" NPTM, 1/4" NPTM).

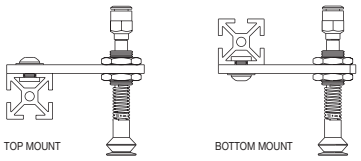
Please order Spring Level Brackets as separate line item based on part number i.e. SLBF1-4

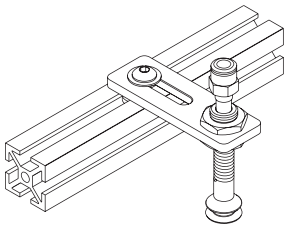
Please order Spring Levelers as separate line item based on part number i.e. VSL1-20.

Please order Mounting Hardware as separate line item based on part number i.e. MK-SL

If you would like parts factory assembled, please specify on order "factory assembled."

Light Duty Spring Leveler Brackets – Series SLBS Series

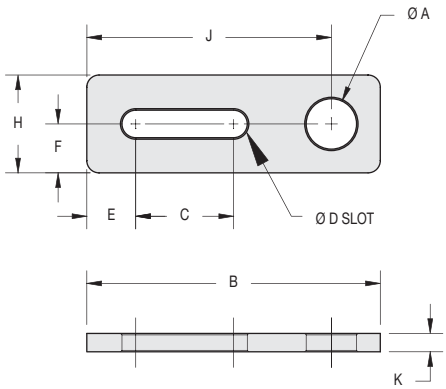




Flexible mounting positions

SLBS1- (2, 3, 4) with hardware

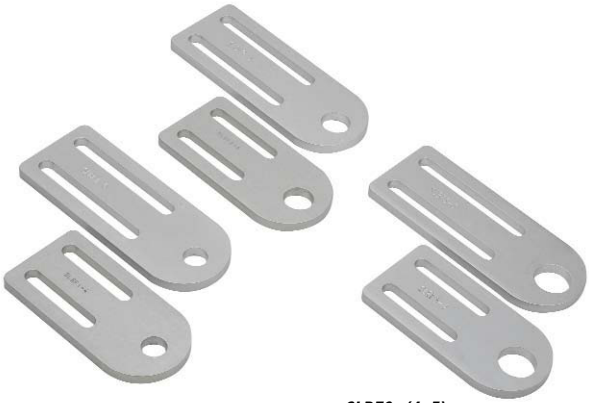
SLBS2- (2, 3, 4) with hardware



Dimensions											
Model #		**A-Dia**	**B**	**C**	**D**	**E**	**F**	**H**	**J**	**K**	**Weight**
SLBS1-2	**in.**	0.51 [13.0]	2.00	0.28	0.28 [7.1]	0.50 [12.7]	0.50 [12.7]	1.00 [25.4]	1.50	0.19 [4.8]	0.5 oz
	mm		50.8	7.1					38.1		14.2 g
SLBS1-3	**in.**		3.00	2.00					2.50		0.8 oz
	mm		76.2	50.8					63.5		22.7 g
SLBS1-4	**in.**		4.00	3.00					3.50		0.9 oz
	mm		101.6	76.2					88.9		25.5 g
SLBS2-2	**in.**	0.64 [16.3]	2.00	0.28					1.50		0.5 oz
	mm		50.8	7.1					38.1		14.2 g
SLBS2-3	**in.**		3.00	2.00					2.50		0.8 oz
	mm		76.2	50.8					63.5		22.7 g
SLBS2-4	**in.**		4.00	3.00					3.50		0.9 oz
	mm		101.6	76.2					88.9		25.5 g

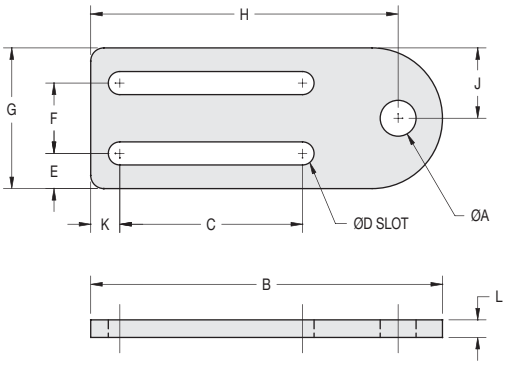
Light Duty Spring Leveler Brackets – Series SLBF Series

SLBF2- (4, 5)



SLBF1- (4, 5)

SLBF3- (4, 5)



Dimensions												
Model #		A-Dia	B	C	D	E	F	H	J	K	L	Weight
SLBF1-4	in.	0.51	4.00	1.60	0.33 [8.3]	0.50 [12.7]	1.00 [25.4]	3.37	1.00 [25.4]	0.41 [10.4]	0.25 [6.4]	2.8 oz
	mm	13.0	101.6	40.6				85.6				79.4 g
SLBF1-5	in.	0.51	5.00	2.60				4.37				2.9 oz
	mm	13.0	127.0	66.0				111.0				82.2 g
SLBF2-4	in.	0.64	4.00	1.60				3.37				2.8 oz
	mm	16.3	101.6	40.6				85.6				79.4 g
SLBF2-5	in.	0.64	5.00	2.60				4.37				2.8 oz
	mm	16.3	127.0	66.0				111.0				79.4 g
SLBF3-4	in.	0.89	4.00	1.60				3.37				2.3 oz
	mm	22.6	101.6	40.6				85.6				65.2 g
SLBF3-5	in.	0.89	5.00	2.60				4.37				2.8 oz
	mm	22.6	127.0	66.0				111.0				79.4 g

Heavy Duty Spring Levelers/ Level Compensators

SLB40 (2, 3) – Mounting brackets compatible with 1.5" [40mm] extrusions, 5/16" [10mm] T-slot

Heavy Duty Spring Levelers lift parts from different horizontal levels or uneven surfaces.

Ideal Applications:

- End-of-Arm Tooling
- Press load and unload automotive automation
- Robotic assembly
- Pick and place
- Sheet feeding
- Stamping press transfer

Features/Benefits

- Easy to assemble, modular End-of-Arm Tooling components – Minimal design time required
- Durable – Rigid mounting design for heavy, high impact loads
- Smooth operation – Reduces shock to an object that is being lifted
- Lightweight – To maximize robot payload and increase robot speed
- High flow – Maximize performance and holding force for handling porous objects
- Flexible mounting options facilitates End-of-Arm Tooling tool design

When handling sensitive objects such as fruit, Vaccon Spring Levelers feature a soft touch allowing compliance for end-of-arm tools to ensure that all cups make contact. This is especially important when handling large objects such as sheets of plywood that may be warped and the tool has multiple vacuum cups that must make contact.

Vaccon's Spring Leveler design surpasses the competition. We offer large thru-bores that allow higher vacuum flow to overcome leakage and for rapid evacuation to ensure safe handling operations

For design flexibility, Vaccon offers a large range of sizes and travel lengths 0.2" [5mm] to 3.6" [91mm] to accommodate the necessary over-driving by the lifting mechanism to bring all cups in contact.

Recommended for applications which require lifting heavy loads without deflection, Vaccon Heavy Duty Spring Levelers include a rigid mounting bracket for a strong, solid connection to 1.5" [40mm] extrusions.

Standard Spring Levelers:

- **2 Series:** 1/8" and 1/4" NPT male thread
- **8 Models:** Travel lengths from 0.80" to 3.60" [20mm to 91mm]
- Nickel plated steel shafts, stainless steel springs, high performance bearings and aluminum body

Spring Leveler Options:

- Vacuum cups and vacuum fittings
- Swivel attachment – Available for Series 3 only

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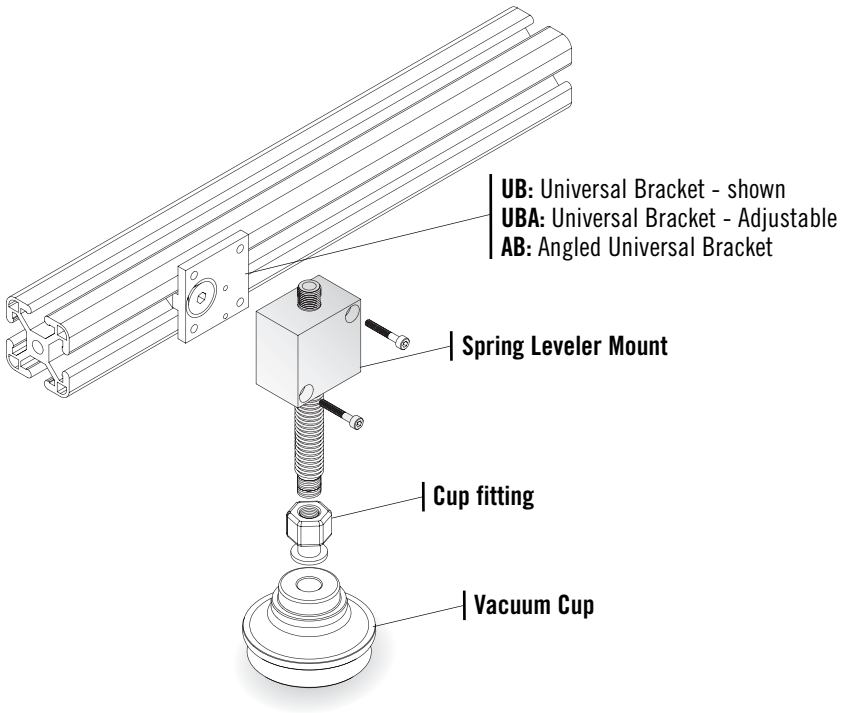
Heavy Duty Spring Leveler Mounting Assembly



How to Specify:

Part Number	Heavy Duty Spring Leveler Mounting Assembly
Series 2	
SLB40-2-80	0.80" travel, 1/8" NPT male thread
SLB40-2-120	1.20" travel, 1/8" NPT male thread
SLB40-2-200	2.00" travel, 1/8" NPT male thread
SLB40-2-280	2.80" travel, 1/8" NPT male thread
Series 3	
SLB40-3-120	1.20" travel, 1/4" NPT male thread
SLB40-3-200	2.00" travel, 1/4" NPT male thread
SLB40-3-280	2.80" travel, 1/4" NPT male thread
SLB40-3-360	3.60" travel, 1/4" NPT male thread

When ordering spring levelers check the "B" dimension for travel range.

Please order spring levelers as separate line items based on part number i.e. **SLB40-2-80**

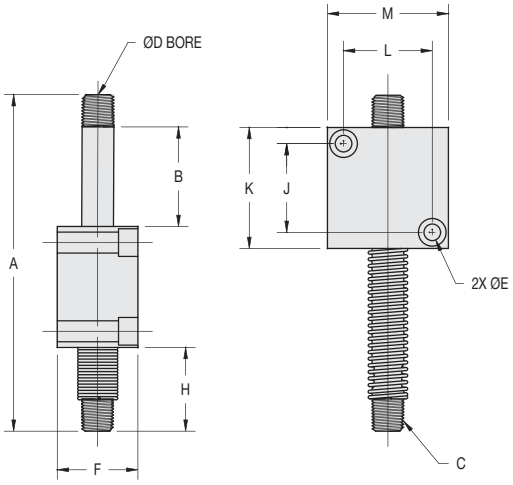
If you would like parts factory assembled, please specify on order **"factory assembled."**

To attach Heavy Duty Spring Levelers to extrusions, please see page 353 for Universal Bracket mounting options.

Heavy Duty Spring Levelers – Series SLB40-2, SLB40-3

Series 2
SLB40-2 (80, 120, 200, 280)

Series 3
SLB40-3 (120, 200, 280, 360)



Dimensions											
Model # Series 2		A	B-Travel	C	D	E	F	H	J, L	K, M	Weight
SLB40-2-80	in.	2.70	0.80	1/8" NPT Male	0.24 [6.1]	0.21 [5.2]	1.00 [25.4]	0.40	1.10 [27.9]	1.10 [27.9]	4.7 oz
	mm	68.6	20.3					10.2			133.2 g
SLB40-2-120	in.	4.27	1.20					1.17			4.7 oz
	mm	108.5	30.5					29.7			133.2 g
SLB40-2-200	in.	5.83	2.00					1.93			5.3 oz
	mm	148.1	50.8					49.0			150.3 g
SLB40-2-280	in.	7.41	2.80					2.71			5.9 oz
	mm	188.2	71.1					68.8			167.3 g

Dimensions											
Model # Series 3		A	B-Travel	C	D	E	F	H	J, L	K, M	Weight
SLB40-3-120	in.	4.27	1.20	1/4" NPT Male	0.31 [7.9]	0.21 [5.2]	1.00 [25.4]	1.17	1.10 [27.9]	1.10 [27.9]	6.9 oz
	mm	108.5	30.5					29.7			195.6 g
SLB40-3-200	in.	5.83	2.00					1.93			7.9 oz
	mm	148.1	50.8					49.0			224.0 g
SLB40-3-280	in.	7.41	2.80					2.71			9.9 oz
	mm	188.2	71.1					68.8			280.7 g
SLB40-3-360	in.	9.00	3.60					3.49			11 oz
	mm	228.6	91.4					88.6			311.8 g

Adjustable, Fixed Extension Shaft & Mounting Brackets

FEB40 (2, 3) - Mounting brackets compatible with 1.5" [40mm] extrusions, 5/16" [10mm] T-slot

Ideal Applications:

- Injection molding
- Pick and place of irregular shaped parts with large surface height differences

Features/Benefits

- Easy to assemble, modular End-of-Arm tool components – minimal design time required
- Fixed positioning for consistent indexing and part retention
- Rigid mounting design for heavy, high impact loads
- Smooth operation – reduces shock to an object that is being lifted
- Lightweight – to maximize robot payload and increase robot speed
- High flow – maximize performance and holding force for handling porous objects
- Flexible mounting options facilitates End-of-Arm tool design

FEB40-3 with bellows vacuum cup.

FEB40-2 fixed extension shaft and bracket with VP10-100H-AC – apple core style mount and clamp for robotic assembly operation in the automotive industry.

Adjustable, Fixed Extension Shaft & Bracket is a rigid, non-moving rod that mounts to the top, sides or bottom of 1.5" [40mm] extrusions. Once the shaft is adjusted to meet a specific height requirement, the bracket is clamped into a fixed position.

Designed for flexible manufacturing operations, the FEB40 Series is easily repositioned by simply loosening 2 collar screws and sliding the shaft up or down to meet the new height requirements. For added adjustability, add an adjustable universal bracket to slide the FEB40 left or right.

Combined with Vaccon's apple core style pump, the FEB40 Series extension shaft and bracket becomes a swivel arm assembly that rotates and pivots into any orientation (3 axis positioning) and then locks into place.

Standard Adjustable, Fixed Extension Shaft & Bracket:

- **2 Series:** 1/8" or 1/4" NPT male
- **8 Shaft Lengths:** 0.40" to 6.7" [10mm to 170mm]
- **Mounting:** Split collar design
- **Material:** Nickel plated steel shafts and aluminum body

Adjustable, Fixed Extension Shaft & Bracket Options:

- Wide variety of vacuum cups and vacuum fittings
- Apple Core attachment
- Universal brackets for easy attachments and adjustable positioning
- Vacuum Cup Swivel attachment – available for Series 3 only

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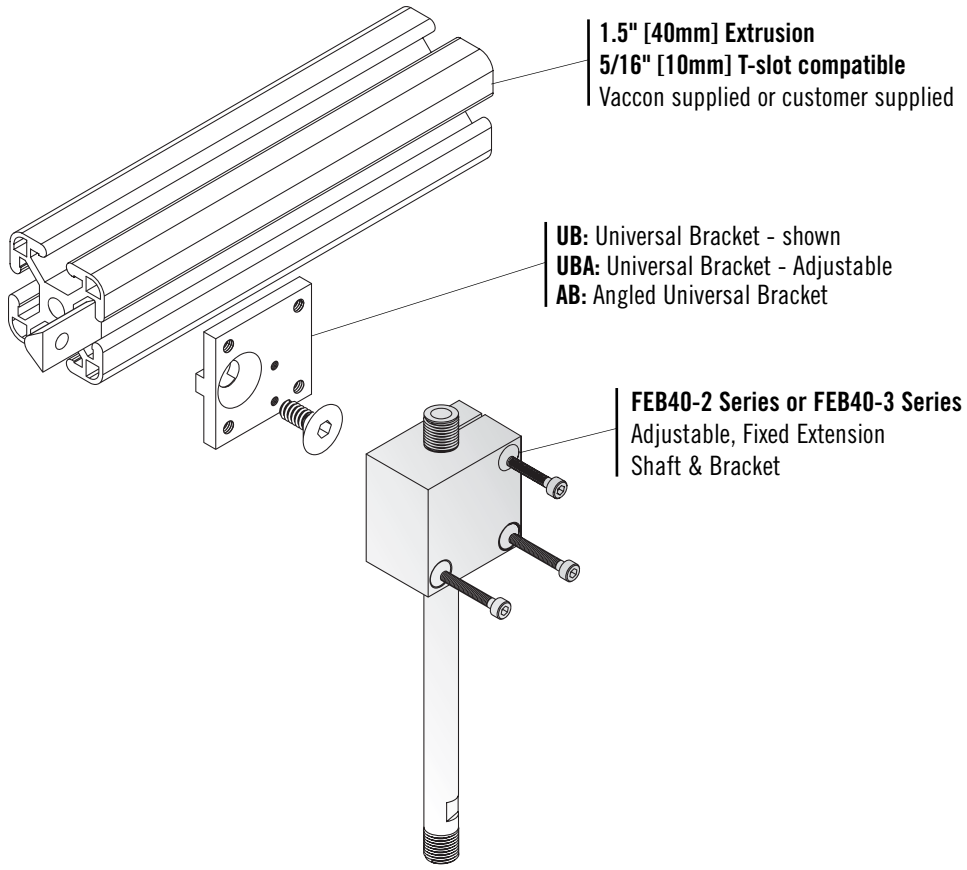
Adjustable Fixed Length Extension Brackets: FEB40- (2, 3) – Configurations and Options:



How to Specify:

Part Number	Adjustable, Fixed Extension Shaft & Brackets
Series 2	
FEB40-2-80	0.40" extension length, 1/8" NPT male thread
FEB40-2-120	1.97" extension length, 1/8" NPT male thread
FEB40-2-200	3.51" extension length, 1/8" NPT male thread
FEB40-2-280	5.11" extension length, 1/8" NPT male thread
Series 3	
FEB40-3-120	1.97" extension length, 1/4" NPT male thread
FEB40-3-200	3.51" extension length, 1/4" NPT male thread
FEB40-3-280	5.11" extension length, 1/4" NPT male thread
FEB40-3-360	6.70" extension length, 1/4" NPT male thread

To specify FEB40, choose part number based on extension length desired, thru bore diameter and thread size on each end of shaft.

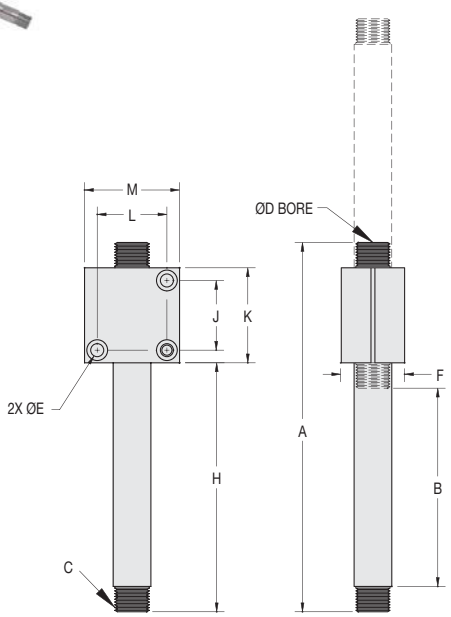
Please order FEB40's as separate line items based on part number. i.e. **FEB40-2-280**.

Please order Universal brackets (UB, UBA or AB) as separate line items based on part numbers.

To attach Adjustable, Fixed Extension Shafts & Brackets to extrusions, please see page 353 for Universal Bracket mounting options.

Adjustable – Fixed Length Extension Shafts & Brackets

Series 2
FEB40-2- (80, 120, 200, 280)



Series 3
FEB40-3-(120, 200, 280, 360)

Dimensions											
Model # Series 2		A	B	C	D	E	F	H	J, L	K, M	Weight
FEB40-2-80	in.	2.70	0.40	1/8" NPT Male	0.24 [6.1]	0.21 [5.2]	1.00 [25.4]	0.80	1.10 [27.9]	1.50 [38.1]	4.7 oz
	mm	68.6	10.2					20.3			133.2 g
FEB40-2-120	in.	4.27	1.97					2.37			4.7 oz
	mm	108.5	50.0					60.2			133.2 g
FEB40-2-200	in.	5.83	3.51					3.91			5.3 oz
	mm	148.1	89.2					99.3			150.3 g
FEB40-2-280	in.	7.41	5.11					5.51			5.9 oz
	mm	188.2	129.8					140.0			167.3 g

Dimensions											
Model # Series 3		A	B	C	D	E	F	H	J, L	K, M	Weight
FEB40-3-120	in.	4.27	1.97	1/4" NPT Male	0.31 [7.9]	0.21 [5.2]	1.00 [25.4]	2.37	1.10 [27.9]	1.50 [38.1]	6.9 oz
	mm	108.5	50.0					60.2			195.6 g
FEB40-3-200	in.	5.83	3.51					3.91			7.9 oz
	mm	148.1	89.2					99.3			224.0 g
FEB40-3-280	in.	7.41	5.11					5.51			9.9 oz
	mm	188.2	129.8					140.0			280.7 g
FEB40-3-360	in.	9.00	6.70					7.1			11 oz
	mm	228.6	170.2					180.3			311.8 g

Vacuum Cup Swivel Joint

CSJ3 Series 3 - Mounting brackets compatible with 1.5" [40mm] extrusions, 5/16" [10mm] T-slot

Ideal Applications:

- Stamping operations (press load and unload)
- Palletizing
- Handling curved and angular objects

Features/Benefits:

- Durable –rugged all steel design
- Full 40° angular movement (20° in each direction)
- Smooth and secure operation – follows contour of object being lifted
- Lightweight – maximize robot payload and increase robot speed
- High flow – maximize performance and holding force for handling porous objects
- Flexible mounting options facilitates End-of-Arm Tooling tool design

CSJ3-14 Vacuum Cup Swivel Joint with FEB40-3 Fixed Extension Shaft & Bracket and vacuum cup.

CSJ3-38

Handling curved surfaces is easy with Vaccon's new Vacuum Cup Swivel Joint. The CSJ3 swivel joints attach to a spring leveler and vacuum cup providing a full 40º angular movement. To control the degree of swivel, simply tighten the collar nut located on top of the swivel joint to restrict movement.

Developed in conjunction with Vaccon spring levelers, the CSJ3 swivel joint assemblies feature exceptionally large flow paths to safely handle porous objects. Depending on height and tooling requirements, Vacuum Cup Swivel Joints are interchangeable with the following Series 3 spring levelers:

VSL3 – Standard spring levelers
SLB40-3 – Heavy duty spring levelers
FEB40-3 – Fixed extension shafts & brackets

Standard Vacuum Cup Swivel Joint:

- 3 Sizes: 1/4", 3/8", 1/2" NPT male threads – mates to a wide variety of vacuum cup fittings
- 1/4" NPTF top port mates to all the 1/4" NPT Series 3 levelers
- Material: Nickel plated steel, Buna-N O-ring

Vacuum Cup Swivel Joint Options:

- Variety of vacuum cups and vacuum fittings
- Custom designs and stainless steel construction available for food and wash-down applications. Consult factory.

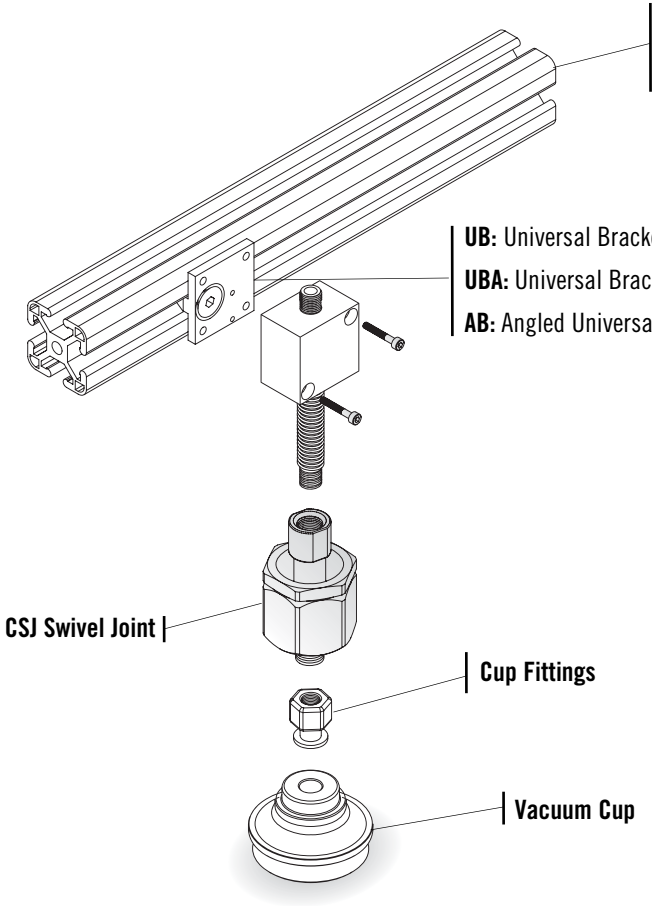
Eliminate the Guesswork: Contact Us!

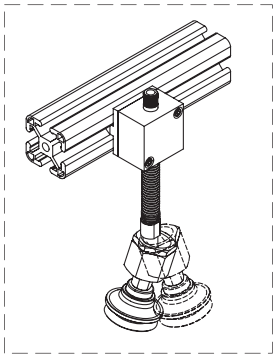
Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

To download a complete set of drawings in 13 different CAD formats, please visit our website at www.vaccon.com

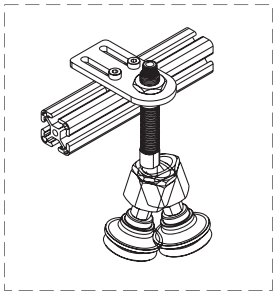
For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email engineering@vaccon.com

Vacuum Cup Swivel Joint: CSJ-3 Series:

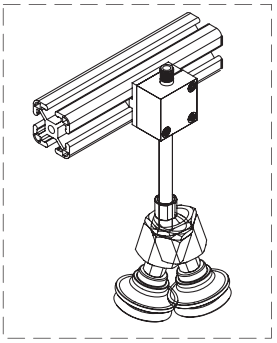




SLB40-3 Series:
Heavy Duty
Spring Levelers



VSL3 Series:
Spring Levelers



FEB40-3 Series:
Adjustable, Fixed
Extension Shaft
& Bracket

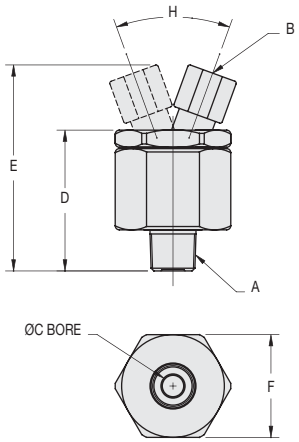
How to Specify:

Part Number	Vacuum Cup Swivel Joint
CSJ3-14	1/4" NPT – male thread
CSJ3-38	3/8" NPT – male thread
CSJ3-12	1/2" NPT – male thread

Choose the swivel joint with the same NPT thread as the vacuum cup fitting.

Order by part number i.e. **CSJ3-38**

Vacuum Cup Swivel Joint: Series 3 – CSJ-3



Dimensions									
Model #		A Thread	B Thread	C Thru Bore	D	E	F Hex	H Swivel Angle	Weight
CSJ3-14	in.	1/4" NPT	1/4" NPT	0.31 [7.9]	2.90	1.96	1.50 [38.1]	40°	11.7 oz
	mm				73.7	49.8			331.7 g
CSJ3-38	in.	3/8" NPT			3.00	2.06			12.7 oz
	mm				76.2	52.3			360 g
CSJ3-12	in.	1/2" NPT			3.00	2.06			12.7 oz
	mm				76.2	52.3			360 g

Universal Mounting Brackets – Standard, Adjustable, Angled

Compatible with 1" [25mm] and 1.5" [40mm] extrusions

Features/Benefits

- 3 Styles – standard, adjustable or angled with simple erector-set connectivity
- Anodized aluminum – lightweight – reduces stress, extends performance and life of robot
- Modular components add design flexibility – adaptable for all EOAT configurations
- Keyed profile for tight fit – non-rotating – strong holding force
- Mounting kit includes hardware to attach products to extrusions
- Angled brackets have optional adjustment knob, consult factory

Standard Universal Bracket attaches VP10-100H to extrusion for halogen bulb pick and place operation.

Configurator, CAD Drawings, and On-line Store

Click Here

Universal Bracket(Adjustable) with Vacuum cup/Manifold block assembly. See page 359 for Vacuum cup/Manifold block.

Angled Bracket holds VP10-60M vacuum pump and cup, with exposed fastening screw for quick and easy adjustments.

UB, UBA, and AB brackets.

Universal Mounting Brackets are simple, lightweight connectors that attach Vaccon vacuum pumps, vacuum cups, spring levelers and manifold blocks to 1" or 1.5" extrusions.

Available in 3 models, standard, adjustable or angled, our Universal Brackets are keyed to fit securely in 1/4" [6.5mm] or 5/16" [10mm] T-slots, remain square and increase holding force.

Brackets are available with or without mounting hardware.

Standard Universal Bracket: (UB)

The standard UB is a fixed position bracket that is tamper resistant. Once the screw is tightened to the extrusion and a product is mounted to the bracket the fastening screw is now covered and inaccessible to adjust.

Universal Bracket Adjustable: (UBA)

An elongated version of the standard bracket, the UBA features an exposed fastening screw that enables quick, easy bracket adjustments along the T-slot.

Angled Universal Bracket: (AB)

For operations that require frequent adjustments, the AB models are the easiest to re-position. One side of the bracket holds the vacuum pump, the other side of the bracket attaches to the extrusion enabling the bracket assembly to slide along the T-slot for unlimited adjustments. With the pump located on a 90º angle, the fastening screw is easily accessible at all times. Optional adjustment knobs are available for the AB models.

Eliminate the Guesswork: Contact Us!

Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

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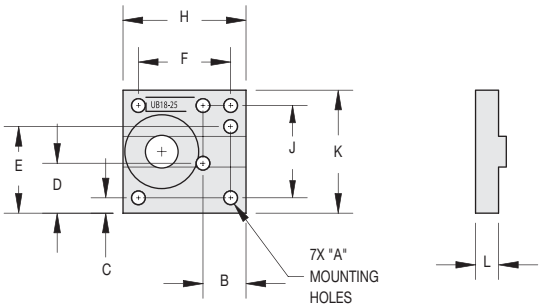
For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email **engineering@vaccon.com**

Universal Brackets and Mounting Kits for 1" Extrusions

Bracket only: UB18-25

Bracket & Mounting Kit: MK-UB18-25



Bracket accepts: Vaccon VP00, VP0X, VP10 & VP1X Series pumps and MB18-25 manifold block.

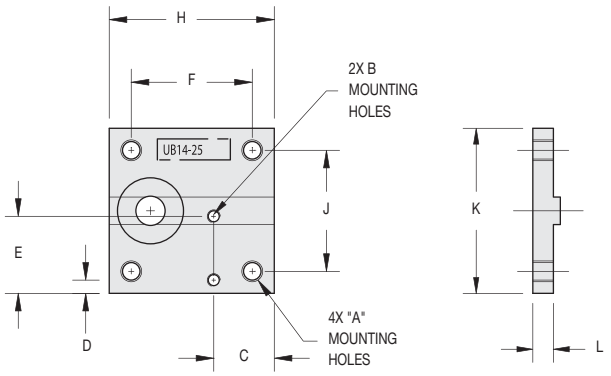
Model #		Dimensions									Weight
			A- Mtg Holes	B- Mtg Holes	C	D	E	F, J	H, K	L	
UB18-25	Fits 1/4 T-Slot	in	M3 x 0.5	0.35	0.13	0.41	0.70	0.75	1.00	0.19	0.3 oz
	Fits 6.5mm T-Slot	mm		8.9	3.2	10.3	17.8	19.1	25.4	4.7	8.5 g

Note 1: Mounting kit includes all hardware to mount pumps and manifold block.

Note 2: Depending on the pump being mounted, it may be necessary to rotate the bracket 180º from diagram shown.

Bracket only: UB14-25

Bracket & Mounting Kit: MK-UB14-25



Bracket accepts all Vaccon VP Series pumps except the VP00/VP0X Series. Fits All MB14 Series manifold blocks. (Allows larger pumps to be mounted to 1" extrusions).

Model #		Dimensions									Weight
			A- Mtg Holes	B- Mtg Holes	C	D	E	F, J	H, K	L	
UB14-25	Fits 1/4 T-Slot	in	10-32	M3 x 0.5	0.55	0.12	0.70	1.10	1.50	0.19	0.7 oz
	Fits 6.5mm T-Slot	mm			14.0	3.0	17.8	27.9	38.1	4.7	19.8 g

Note 1: Mounting kit includes all hardware to mount pumps and manifold block.

How to Specify:

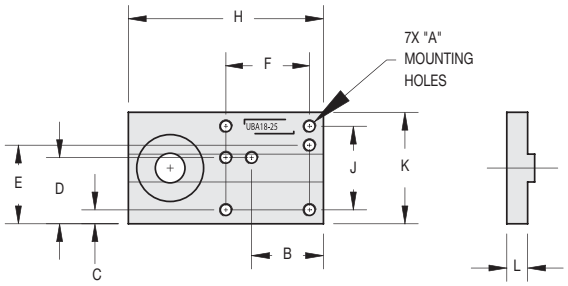
Bracket only: See Model Numbers: i.e. **UB18-25**

Bracket & Mounting Kit: Add "**MK**" for mounting kit in front of Model Number i.e. **MKUB18-25**

Universal Brackets (Adjustable) and Mounting Kits for 1" Extrusions

Bracket only: UBA18-25

Bracket & Mounting Kit: MK-UBA18-25



Bracket accepts: Vaccon VP00, VP0X, VP01, VP10 & VP1X Series pumps and MB18-25 manifold block.

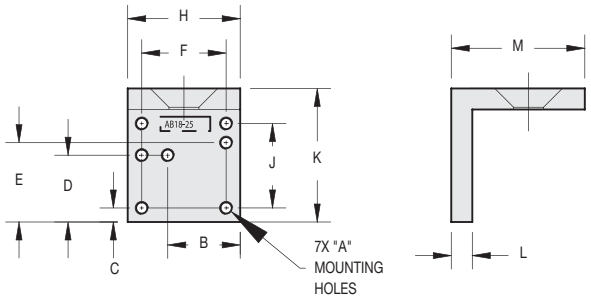
Model #		Dimensions										Weight
			A- Mtg Holes	B- Mtg Holes	C	D	E	F, J	H	K	L	
UBA18-25	Fits 1/4 T-Slot	in	M3 x 0.5	0.64	0.13	0.60	0.70	0.75	1.75	1.00	0.19	0.5 oz
	Fits 6.5mm T-Slot	mm		16.4	3.2	15.2	17.8	19.1	44.5	25.4	4.7	14.2 g

Note 1: Mounting kit includes all hardware to mount pumps and manifold block.

Angled Brackets and Mounting Kits for 1" Extrusions

Bracket only: AB18-25

Bracket & Mounting Kit: MK-AB18-25



Bracket accepts: Vaccon VP00, VP0X, VP01, VP10 & VP1X Series pumps and MB18-25 manifold block.

Model #		Dimensions										Weight
			A- Mtg Holes	B- Mtg Holes	C	D	E	F, J	H, K	L	M	
AB18-25	Fits 1/4 T-Slot	in	M3 x 0.5	0.64	0.13	0.60	0.70	0.75	1.00	0.19	1.19	0.6 oz
	Fits 6.5mm T-Slot	mm		16.4	3.2	15.2	17.8	19.1	25.4	4.7	30.1	17.0 g

Note 1: Mounting kit includes all hardware to mount pumps and manifold block.

How to Specify:

Bracket only: See Model Numbers: i.e. **AB18-25**

Bracket & Mounting Kit: Add "**MK**" for mounting kit in front of Model Number i.e. **MKAB18-25**

Bracket & Mounting Kit with Adjustment Knob: **ABKUB14-40**

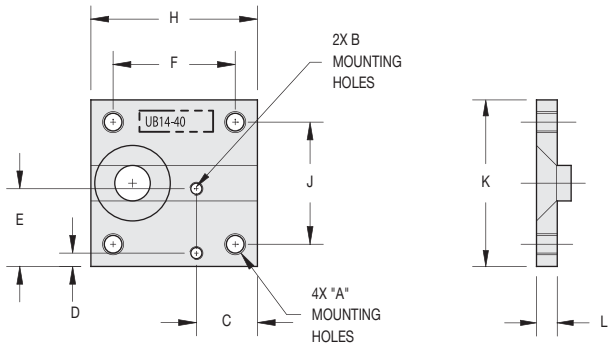
Universal Brackets and Mounting Kits for 1.5" Extrusions

Bracket only: UB14-40 (5/16th T-slot)

Bracket only: IUB14-40 (10mm T-slot)

Bracket and Mounting Kit: MK-UB14-40 (5/16th T-slot)

Bracket and Mounting Kit: IMK-UB14-40 (10mm T-slot)



Accepts all VP10 Series pumps and above, and MB14 manifold blocks.

Note 1: Mounting kit includes all hardware to mount pumps and manifold block.

Model #		Dimensions									Weight
			A- Mtg Holes	B- Mtg Holes	C	D	E	F, J	H, K	L	
UB14-40	Fits 5/16 T-Slot	in	10-32	M3 x 0.5	0.55	0.12	0.7	1.10	1.50	0.19	0.7 oz
IUB14-40	Fits 10mm T-Slot	mm			14.0	3.0	17.8	27.90	38.10	4.70	19.8 g

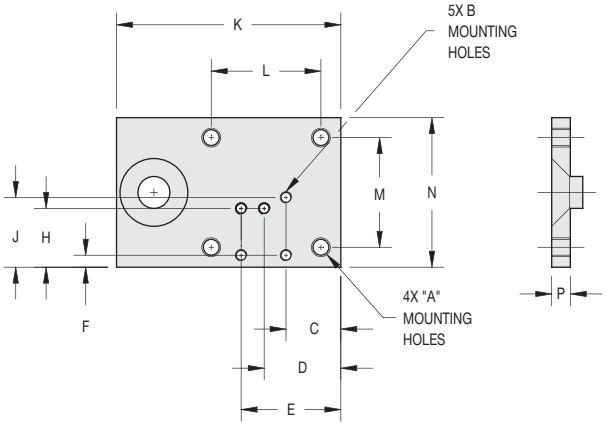
Universal Brackets (Adjustable) and Mounting Kits for 1.5" Extrusions

Bracket only: UBA14-40 (5/16th T-slot)

Bracket only: IUBA14-40 (10mm T-slot)

Bracket and Mounting Kit: MK-UBA14-40 (5/16th T-slot)

Bracket and Mounting Kit: IMK-UBA14-40 (10mm T-slot)



Accepts all VP Series pumps and MB14 Cup Mounts.

Note 1: Mounting kit includes all hardware to mount pumps and manifold block.

Model #		Dimensions														Weight
			A- Mtg Holes	B- Mtg Holes	C	D	E	F	H	J	K	L	M	N	P	
UBA14-40	Fits 5/16 T-Slot	in	10-32	M3 x 0.5	0.55	0.77	1.00	0.12	0.59	0.70	2.25	1.10	1.10	1.50	0.19	1 oz
IUBA14-40	Fits 10mm T-Slot	mm			14.0	19.5	25.4	3.0	15.0	17.8	57.2	27.9	38.1	38.1	4.7	28.3 g

How to Specify:

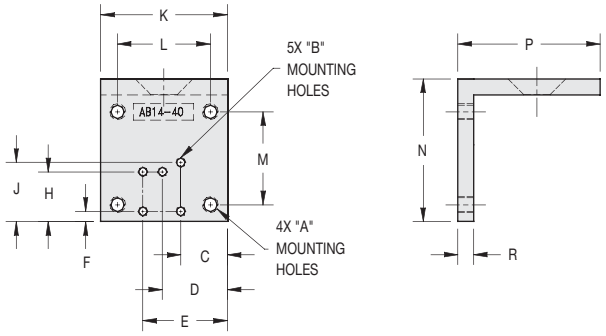
Bracket only: See Model Numbers: i.e. UB14-40

Bracket & Mounting Kit: Add "MK" for mounting kit in front of Model Number i.e. MKUB14-40

Angled Brackets and Mounting Kits for 1.5" Extrusions

Bracket only: AB14-40

Bracket & Mounting Kit: MK-AB14-40
Available with optional adjustment knob.
See Bracket Construction Sequence below



Accepts all VP Series pumps and MB14 Cup Mounts.

Note 1: Mounting kit includes all hardware to mount pumps and manifold block.

Model #			Dimensions														Weight
			A- Mtg Holes	B- Mtg Holes	C	D	E	F	H	J	K	L	M	N	P	R	
AB14-40	Fits 5/16 T-Slot	in	10-32	M3 x 0.5	0.55	0.77	1.00	0.12	0.59	0.70	1.50	1.10	1.50	1.69	1.69	0.19	1 oz
IAB14-40	Fits 10mm T-Slot	mm			14.0	19.5	25.4	3.0	15.0	17.8	38.1	27.9	38.1	42.8	42.8	4.7	28.3 g

How to Specify:

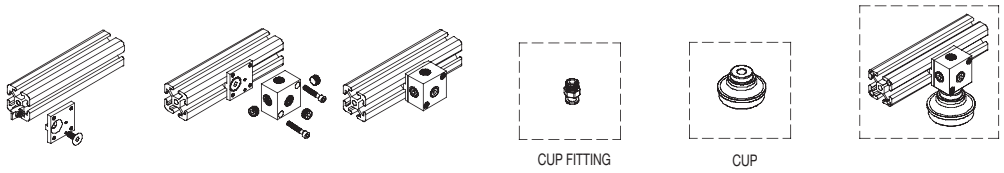
Bracket only: See Model Numbers: i.e. **UB14-40**

Bracket & Mounting Kit: Add "**MK**" for mounting kit in front of Model Number i.e. **MKUB14-40**

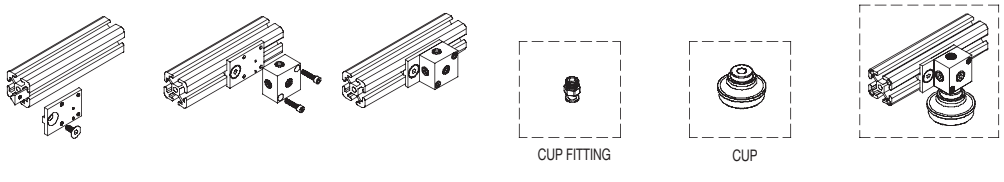
Bracket & Mounting Kit with Adjustment Knob: **MK-ABK14-40** (angled brackets only)

Standard, Adjustable & Angled Bracket Construction Sequence:

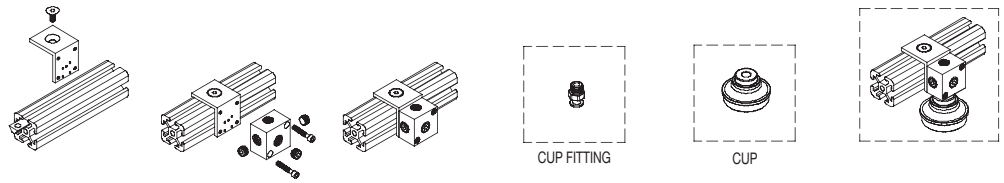
Standard Bracket



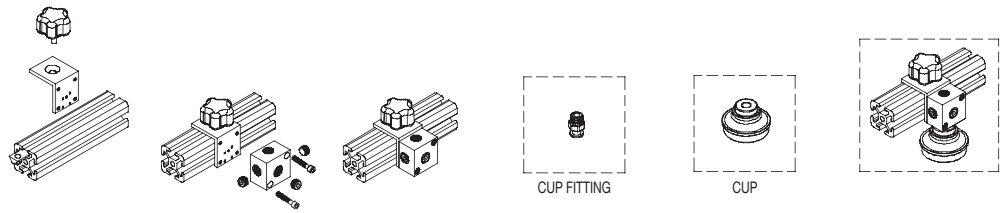
Adjustable Bracket



Angled Bracket



Angled Bracket w/Optional Adjustment Knob



Vacuum Cup Mount/ Manifold Block

Combination Cup Mount and Manifold Block Compatible with 1" [25mm] and 1.5" [40mm] extrusions

VP80-200M distributes vacuum to four cup mount/manifold assemblies to pick up corrugated board.

MB14-40 Vacuum Cup Mount/Manifold Block

Simplify your End-of-Arm tooling devices using our new dual purpose MB Series - Vacuum Cup Mount/Manifold Block. Whether you are mounting vacuum cups to extrusions and/or distributing vacuum to multiple locations, the MB Series streamlines your design with one multi-functional component.

For design and plumbing flexibility, the MB Series features five vacuum ports and three mounting options that easily connect vacuum pumps and cups to 5/16" [10mm] or 1/4" [6.5mm] T-slot extrusions. Extra vacuum ports allow optional accessories to be directly mounted to the manifold block i.e. vacuum gauges or remotely plumbed such as vacuum switches, sensors or blow-off capabilities.

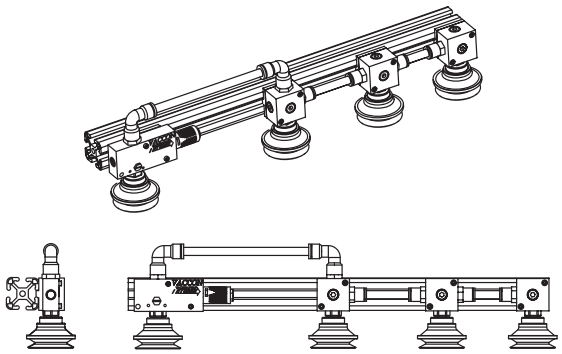
High vacuum flow is critical for handling porous objects. Vaccon offers up to 3/4" NPT ports to ensure high flow paths.

Options:

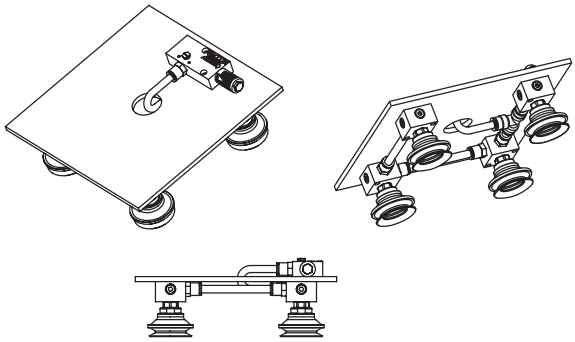
3 Mounting port options: standard, bottom or face mount

9 Models: 1/8" to 3/4" NPT

3 Universal brackets: fixed, adjustable or angled



The vacuum cup mount/manifold easily connects to the T-slot extrusion using a Universal Bracket (see Page 353).



For non T-slot applications, attach the vacuum cup mount/manifold to the underside of a flat tooling plate head.

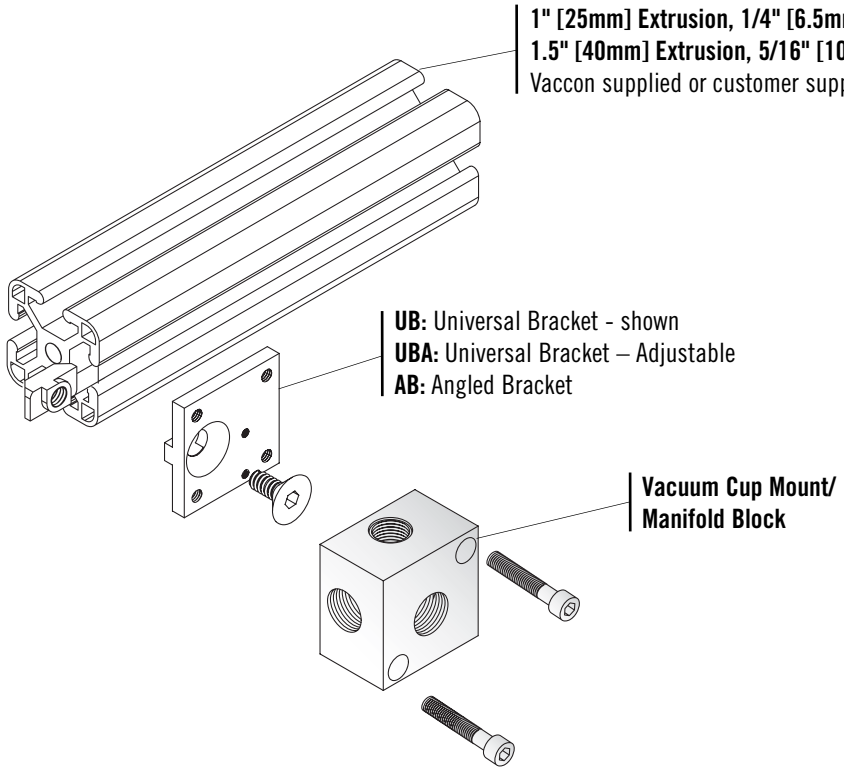
Ideal Applications:

- Robotic End Effectors/End-of-Arm Tooling
- Removing products from molds
- Sheet metal transfer
- Palletizing of work pieces
- Nesting fixtures
- Assembly fixtures
- Pick and place

Features/Benefits

- Direct mount for cups – maintains consistent height for all cups
- High performance – full vacuum flow out performs competition
- Easy to assemble, modular End-of-Arm Tooling components – minimal design time required
- Flexible design – 5 ports for easy plumbing, allows side entry vacuum, adaptable for all End-of-Arm Tooling configurations
- Square shape – easily mounts to any side of the extrusion, products stay square and flush
- Vacuum lines may be connected in series or home run plumbed to streamline the tooling fixture
- Anodized aluminum – lightweight, extends performance and life of robot, allows higher speeds
- Large thread sizes provides high flow rates for safe handling of porous objects

Vacuum Cup Mount/Manifold Configuration & Specifications:



How to Specify:

Part Number	Vacuum Cup Mount/Manifold Block
MB18-25	1/8" NPT – All Female Ports – recommended for 1" (25mm) extrusions
MB14-40	1/4" NPT – All Female Ports – recommended for 1.5" (40mm) extrusions
MBB14-40	1/4" NPT – Bottom Male Port – recommended for 1.5" (40mm) extrusions
MBB38-40	3/8" NPT – Bottom Male Port – recommended for 1.5" (40mm) extrusions
MBB12-40	1/2" NPT – Bottom Male Port – recommended for 1.5" (40mm) extrusions
MBF14-40	1/4" NPT – Face Male Port – recommended for 1.5" (40mm) extrusions
MBF38-40	3/8" NPT – Face Male Port – recommended for 1.5" (40mm) extrusions
MBF12-40	1/2" NPT – Face Male Port – recommended for 1.5" (40mm) extrusions
MBF34-40	3/4" NPT – Face Male Port – recommended for 1.5" (40mm) extrusions

Please note: All vacuum cup mount/manifolds include 3 flush plugs to seal extra ports.

Please order Vacuum cup mount/manifolds as separate line items based on part number i.e. **MBB12-40**

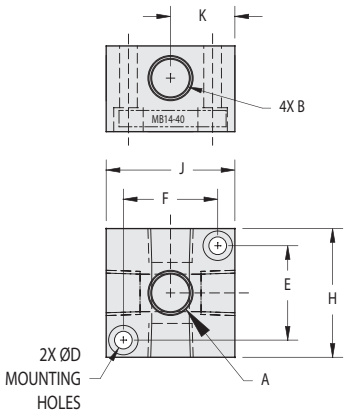
If you would like parts factory assembled, please specify on order **"factory assembled."**

To attach Vacuum Cup Mount/Manifold to extrusion, please see page 353 for Universal Bracket mounting options.

Vacuum Cup Mount/Manifold – All Female ports : MB 14-40, 18-25

MB18-25

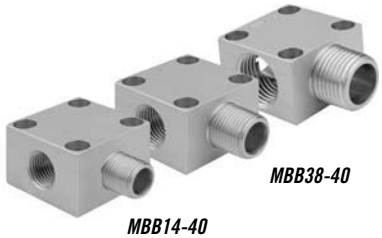
MB14-40



Model #		Dimensions - Fits 1" [25mm] Extrusions										Weight
		A-Thread	B- Thread	C	D	E, F	H, J	K, L	M	N	P	
MB18-25	in	1/8" NPT	1/8" NPT	0.34	0.1	0.75	1.00	0.5	1.00	0.25	N/A	1.2 oz
	mm	G 1/8	G 1/8	8.6	3.3	19.1	25.4	12.7	25.4	6.4	N/A	34 g

Model #		Dimensions - Fits 1.5" [40mm] Extrusions										Weight
		A-Thread	B- Thread	C	D	E, F	H, J	K, L	M	N	P	
MB14-40	in	1/4" NPT	1/4" NPT	0.44	0.21	1.10	1.50	0.50	1.00	0.38	N/A	2.6 oz
	mm	G 1/4	G 1/4	11.1	5.2	27.9	38.1	12.7	25.4	9.53	N/A	73.7 g

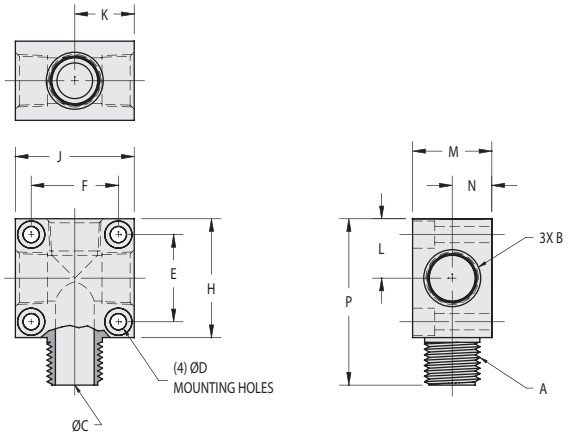
Vacuum Cup Mount/Manifold – Bottom Male ports : MBB (14, 38, 12) -40



MBB12-40

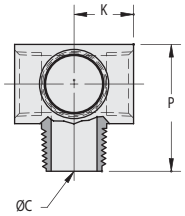
MBB38-40

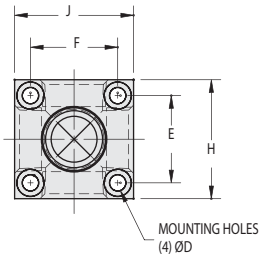
MBB14-40

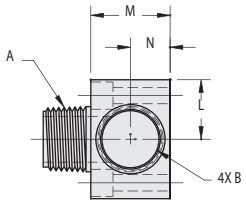


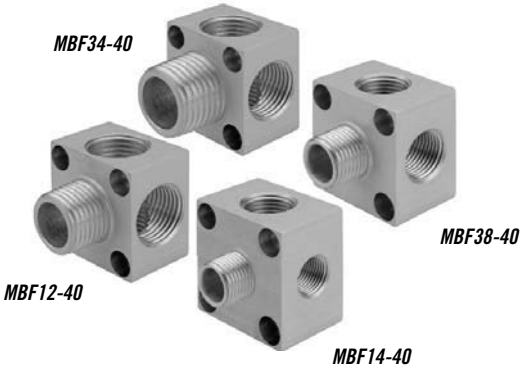
Model #		Dimensions - Fits 1.5" [40mm] Extrusions										Weight
		A-Thread	B- Thread	C	D	E, F	H, J	K, L	M	N	P	
MBB14-40	in	1/4" NPT	1/4" NPT	0.34	0.21 [5.2]	1.10 [27.9]	1.50 [38.1]	0.50 [12.7]	1.00 [25.4]	0.50 [12.7]	2.00	2.6 oz
	mm	G 1/4	G 1/4	8.6							50.8	73.7 g
MBB38-40	in	3/8" NPT	3/8" NPT	0.45							2.10	2.9 oz
	mm	G 3/8	G 3/8	11.4							53.3	82.2 g
MBB12-40	in	1/2" NPT	1/2" NPT	0.58							2.10	1.9 oz
	mm	G 1/2	G 1/2	14.7							53.3	53.9g

Vacuum Cup Mount/Manifold – Face Male Port : MBF (14, 38, 12, 34) -40









Model #		Dimensions - Fits 1.5" [40mm] Extrusions										Weight
		A-Thread	B- Thread	C	D	E, F	H, J	K, L	M	N	P	
MBF14-40	in	1/4" NPT	1/4" NPT	0.34	0.21 [5.2]	1.10 [27.9]	1.50 [38.1]	0.50 [12.7]	1.00 [25.4]	0.50 [12.7]	1.50	2.6 oz
	mm	G 1/4	G 1/4	8.6							38.1	73.7 g
MBF38-40	in	3/8" NPT	3/8" NPT	0.45							1.50	2.7 oz
	mm	G 3/8	G 3/8	11.4							38.1	76.5 g
MBF12-40	in	1/2" NPT	1/2" NPT	0.58							1.60	1.7 oz
	mm	G 1/2	G 1/2	14.7							40.6	48.2g
MBF34-40	in	3/4" NPT	3/4" NPT	0.75							1.60	1.8 oz
	mm	G 3/4	G 3/4	19.1							40.6	51.0 g

T-Slotted Extrusions for End-of Arm Tooling

1.0" [25mm] and 1.5" [40mm] extrusion

1.5" Extrusion with Multi-port pump, spring leveler/vacuum cup assembly – ready to install with one easy connection.

Vaccon End-of-Arm tooling devices are available factory built and tested with your choice of 1" [25mm] or 1.5" [40mm] extrusions. Using modular, lightweight aluminum components, Vaccon focuses on streamlining designs to minimize overall tool weight and maximize air line efficiency.

Compatible with industry standard T-slot extrusions, Vaccon will mix and/or match profiles to your existing equipment to ensure quick and easy connections.

VEOAT components may be ordered separately for on-site assembly and installation with your existing extrusion.

Standard Extrusions

- **Material:** Anodized aluminum
- **2 profiles:** 1.0" [25mm] – 3 sizes: 1.0" x 1.0", 1.0" x 2.0", 1.0 x 3.0"
  1.5" [40mm] – 2 sizes: 1.5" x 1.5", 1.5" x 3.0"
- **End Caps:** Optional

Configurator, CAD Drawings, and On-line Store

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Features/Benefits

- Lightweight – extends life of the robot
- Aluminum – high strength
- Easy to assemble – uses standard fasteners and end caps
- Compatible with industry accepted T-slot extrusions
- Modular components – easily assembled and disassembled for flexible manufacturing operations

1.0" [25mm] Extrusion Optional End Caps

1.5" [40mm] Extrusion Optional End Caps

End Caps and Screws

Vaccon End-of-Arm Tooling

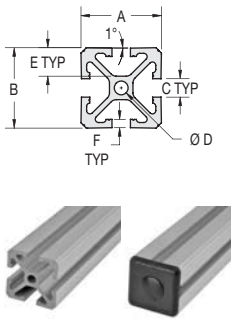
Eliminate the Guesswork: Contact Us!

Vacuum technology isn't an exact science. To ensure proper product selection, Vaccon offers free application engineering assistance, a 30 Day Test & Evaluation Program or you can send sample products to our in-house test facility and we will test and size a pump for you.

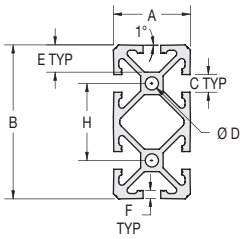
To download a complete set of drawings in 13 different CAD formats, please visit our website at www.vaccon.com

For more information or technical assistance, please call **508-359-7200** or **800-848-8788** or email engineering@vaccon.com

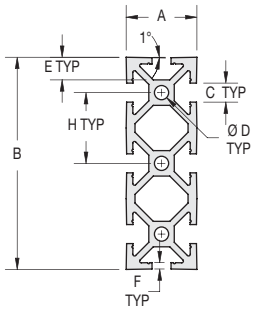
1.0" [25mm] Extrusions – 1/4" [6.5mm] T-slot

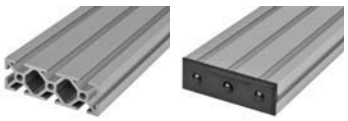


AP1010



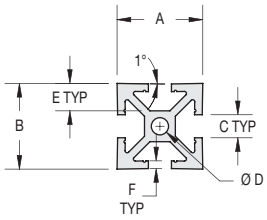
AP1020



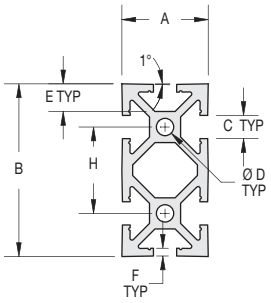


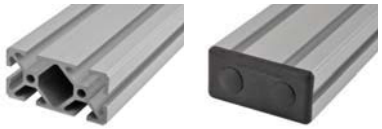
AP1030

1.5" [40mm] Extrusions – 5/16" [10mm] T-slot



AP1515





AP1530

Model #	1" Series		Dimensions							Weight
			A	B	C	D	E	F	H	
AP1010 –*	1.0" x 1.0"	in	1.00 [2.54]	1.00	0.269 [6.8]	0.20 [5.1]	0.32 [8.1]	0.09 [2.3]	–	0.51 lbs/ft
		mm		25.4						0.76 kgs/m
AP1020 –*	1.0" x 2.0"	in		2.00					1.00 [25.4]	0.92 lbs/ft
		mm		50.8						1.37 kgs/m
AP1030 –*	1.0" x 3.0"	in		3.00						1.35 lbs/ft
		mm		76.2						2.01 kgs/m
Model #	**1.5" Series**		**Dimensions**							**Weight**
			A	**B**	**C**	**D**	**E**	**F**	**H**	
AP1515 –*	1.5" x 1.5"	in	1.50 [38.1]	1.50	0.34 [8.7]	0.26 [6.5]	0.53 [13.5]	0.16 [4.0]	–	1.05 lbs/ft
		mm		38.1						1.56 kgs/m
AP1530 –*	1.5" x 3.0"	in		3.00					1.5	2.01 lbs/ft
		mm		76.2					38.1	2.99 kgs/m

How to Specify:

For extrusion only: Order by part number and –* (length in inches) i.e. **AP1010-24.**

For end caps: Please add "EC" to the extrusion model number – i.e. **AP1010-EC, AP1515-EC etc.**

For complete End-of-Arm Tool device and appropriate hardware: Consult factory.

Push-to-Connect Fittings

Push-to-Connect Male Elbow Fitting connects to Vacuum Cup Mount/Manifold Block on Adjustable Universal Bracket

Features/Benefits

- Ready to use, easy to install
- Compact and lightweight
- Fast assembly, disassembly and reassembly – minimal downtime
- No tools required
- No flow restrictions – quick cycle time
- Elbow or elbow angle for tight spaces
- Durable – all metal, solid brass nickel-plated construction
- Tubing sizes: 1/8" to 1/2" OD
- Male or female NPT threads (1/8" to 1/2" NPT)

Configurator, CAD Drawings, and On-line Store

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Push-to-Connect (PTC) fittings are a robotic, End-of-Arm tooling component that connects all Vaccon vacuum pumps, cups, and spring levelers to each other or tubing.

Vaccon provides complete End-of-Arm tooling devices that can be ordered pre-assembled and tested at the factory or shipped in component format for on-site assembly.

Specifications:

Fitting Material:	Brass, nickel plated, PTFE seal ring, Buna-N o-ring
Operating Pressure:	0-250 psi
Operating Temperature:	0º F to 160º F [-18º C to 71º C]
Vacuum rating:	29"Hg
Fluid:	Compressed air

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For more information or technical assistance, please call **508-358-7200** or **800-848-8788** or email **engineering@vaccon.com**

PTC Fittings: Male Straight

Model #	Male Straight Fittings	
VSLF-02-32MS	Straight PTC fitting 1/8" OD x 10-32 NPT Male	Connect to VSL1 Spring Levers
VSLF-04-32MS	Straight PTC fitting 1/4" OD x 10-32 NPT Male	
VMPF-04-14MS	Straight PTC fitting 1/4" OD x 1/4" NPT Male	Connect to Vaccon vacuum pumps, and vacuum cup mount/ manifold blocks
VMPF-04-38MS	Straight PTC fitting 1/4" OD x 3/8" NPT Male	
VMPF-06-14MS	Straight PTC fitting 3/8" OD x 1/4" NPT Male	
VMPF-06-38MS	Straight PTC fitting 3/8" OD x 3/8" NPT Male	
VMPF-06-12MS	Straight PTC fitting 3/8" OD x 1/2" NPT Male	
VMPF-08-38MS	Straight PTC fitting 1/2" OD x 3/8" NPT Male	
VMPF-08-12MS	Straight PTC fitting 1/2" OD x 1/2" NPT Male	

PTC Fittings: Male Elbow

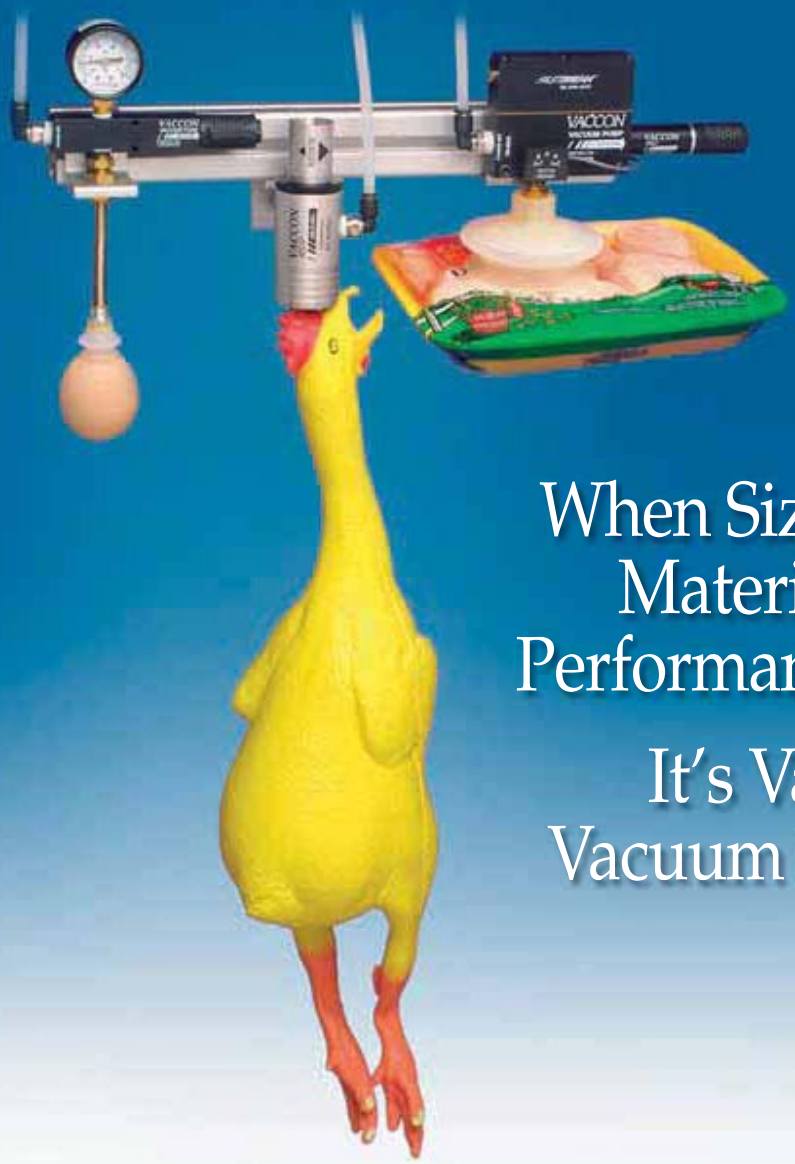
Model #	Male Elbow Fittings	
VSLF-04-32ME	Elbow PTC fitting 1/4" OD x 10-32 Male	Connect to VSL1 Spring Levers
VMPF-04-18ME	Elbow PTC fitting 1/4" OD x 1/8" NPT Male	Connect to Vaccon vacuum pumps, spring levelers and vacuum cup mount/ manifold blocks
VMPF-04-14ME	Elbow PTC fitting 1/4" OD x 1/4" NPT Male	
VMPF-06-14ME	Elbow PTC fitting 3/8" OD x 1/4" NPT Male	
VMPF-06-38ME	Elbow PTC fitting 3/8" OD x 3/8" NPT Male	
VMPF-06-12ME	Elbow PTC fitting 3/8" OD x 1/2" NPT Male	
VMPF-08-38ME	Elbow PTC fitting 1/2" OD x 3/8" NPT Male	
VMPF-08-12ME	Elbow PTC fitting 1/2" OD x 1/2" NPT Male	

PTC Fittings: Female Straight

Model #	Female Straight Fittings	
VSLF-02-18FS	Straight PTC fitting 1/8" OD x 1/8" NPT Female	Connect to VSL2 Spring Levers
VSLF-04-18FS	Straight PTC fitting 1/4" OD x 1/8" NPT Female	
VSLF-06-18FS	Straight PTC fitting 3/8" OD x 1/8" NPT Female	
VSLF-04-14FS	Straight PTC fitting 1/4" OD x 1/4" NPT Female	Connect to VSL3 Spring Levers
VSLF-06-14FS	Straight PTC fitting 3/8" OD x 1/4" NPT Female	
VSLF-06-38FS	Straight PTC fitting 3/8" OD x 3/8" NPT Female	

PTC Fittings: Female Elbow

Model #	Female Elbow Fittings	
VSLF-04-18FE	Elbow PTC fitting 1/4" OD x 1/8" NPT Female	Connect to VSL2 Spring Levers
VSLF-04-14FE	Elbow PTC fitting 1/4" OD x 1/4" NPT Female	Connect to VSL3 Spring Levers
VSLF-06-14FE	Elbow PTC fitting 3/8" OD x 1/4" NPT Female	
VSLF-08-38FE	Elbow PTC fitting 1/2" OD x 3/8" NPT Female	



When Size, Shape, Material and Performance Matter

It's Vaccon Vacuum Products

Which came first....
the chicken, the egg, or the frozen wings?
Does it matter? Not any more...

Whether your products evolve through the production process... or your production process evolves to handle different products...

Manufacturing must be flexible.

Having the right pump for the process reduces changeover times between products or processes. That's why Vaccon offers over 500 models of vacuum pumps and accessories to meet your application requirements.

With over 35 years of vacuum application and engineering experience, we relish the opportunity to work with creative engineers to design and manufacture efficient, innovative and reliable vacuum automation solutions.

At Vaccon, our entrepreneurial spirit loves a challenge. If it doesn't defy the laws of physics, (and sometimes even if it does), we're not chicken, we'll try just about anything.

Vacuum Pumps

Vaccon offers the most extensive line of venturi vacuum pumps with optional Air Saver technology, single or dual controlled solenoid valves, pneumatic blow-offs, multi-ports, apple core style mount, high vacuum pumps, variable vacuum pumps, material conveying pumps, air amplifiers, manifolds and more.

Accessories

Our complete line of accessories include vacuum cups, spring levelers, fittings, silencers, vacuum check valves, filters, vacuum and pressure, digital, mechanical and adjustable switches, sensors and gauges, electrical quick disconnects, ultra-mini vacuum cups, probes, vacuum pencils and more.

New – Vaccon End-of-Arm Tooling

Whether it's a single component or a complete system, Vaccon's EOAT product line offers light duty and heavy duty spring levelers and brackets, fixed extension shafts and brackets, vacuum cup swivel joints, universal mounting brackets, manifold block/cup mounts, extrusions, push-to-connect fittings and more.

Custom Products

When off the shelf doesn't work, Vaccon engineering expertise and manufacturing capabilities can provide custom solutions to your specifications. Whether it's as simple as modifying a standard product or more complex requiring a new product with particular features or special materials, Vaccon has the solution.

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Vaccon pumps won't clog or lose suction.

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Foundry application: VDF pump solves maintenance problem

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Powerful new design tool lets you quickly configure the product you need in the 2D and 3D format of your choice saving valuable design time. Vaccon's digital catalog offers the visual appeal of our traditional catalog coupled with interactive possibilities only available online. Access Vaccon's catalog from anywhere!

Vaccon Company, Inc.
P.O. Box 324, Medfield, MA 02052

Visit us on the web @ www.vaccon.com
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